The Chemical Age

A Weekly Journal Devoted to Industrial and Engineering Chemistry

VOL. XVII. No. 436 NOVEMBER 5, 1927 Prepaid Annual Subscription: United Kingdom, £1.1.0; Abroad, £1.6.0.

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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

The prepaid subscription to THE CHEMICAL AGE *is 21s. per annum for the United Kingdom, and 26s. abroad. Cheques, Money Orders and Postal Orders should be made payable to Benn Brothers, Ltd.*

Editorial and General Offices: Bouverie House, 154, Fleet Street, London, E.C.4.

Telegrams: "Allangas, Fleet, London." Telephone: City 0244

Chemical Research Reports

APART from its intrinsic value, the volume which the Department of Scientific and Industrial Research has just published on "The Production of Formaldehyde by Oxidation of Hydrocarbons" (pp. 54, 1s. 9d.) is especially interesting because of a modest announcement, which might easily be missed, on the front page—"Chemistry Research: Special Report, No. 1." This indicates that the Chemistry Co-ordinating Research Board has definitely embarked on a policy of publishing from time to time selected results of its investigations. This decision will be cordially welcomed on general grounds, and the form which the decision takes will equally be approved, for instead of issuing numerous short notices, the intention appears to be to publish reports of a complete character on specific problems.

The authors of this first report are W. Ledbury, M.Sc., A.I.C., and E. W. Blair, B.Sc., F.I.C., of the Royal Naval Cordite Factory, Holton Heath, and the scope and purpose are briefly indicated in a prefatory note. Formaldehyde, as is generally known, is widely used in many industries for such purposes as disinfection, production of synthetic resins, etc. It was formerly either wholly imported in the form of a 40 per cent. solution, or made—to a small extent—from imported methyl alcohol. After the war, when the price of formaldehyde was very high (£130 per ton in 1921), considerable attention was given in various quarters to its production from home sources, either directly or indirectly through synthesis of methyl alcohol. The Chemistry Research Board decided to explore thoroughly its possible economical production by oxidation of hydrocarbons, since experiments on the production of methyl alcohol were going on elsewhere, and since, for the particular purpose of anthrax disinfection, only dilute solutions of formaldehyde were necessary. Judging from published data of laboratory experiments, oxidation of hydrocarbons appeared to be particularly suitable for the production of dilute solutions.

The experiments have been successful in showing how formaldehyde can be made in the form of a dilute solution; they have not, however, led to important commercial results in view of the greater success of manufacture of methyl alcohol from mixtures of carbon monoxide and hydrogen, which has been one of the causes of the reduction in the price of formaldehyde to its present value of £40 per ton. Nevertheless, the Board thinks it desirable to place all the data on record, particularly as useful information has been obtained in connection with the concentration of dilute formaldehyde solutions. Arrangements were made with the Admiralty for the necessary work to be done at the Royal Naval Cordite Factory, Holton Heath, Dorset, under the Superintendent, Captain A. P. H. Desborough. The investigators who carried out the experimental work of which this report is a summary were T. S. Wheeler, Ph.D., F.I.C., F.R.C.Sc.I., W. Ledbury, M.Sc., A.I.C., and R. Taylor, M.A., B.Sc., who worked at various times under the immediate supervision of E. W. Blair, B.Sc., F.I.C.

World Chemical Trade

AN attempt has recently been made by the United States Department of Commerce to classify the chief chemical exporting countries in their relative positions in the world trade. From the beginning of the post-war period until 1920 the United States was leading the world as an exporter of chemicals. Germany, then crippled by the war, had most leeway to make up. The world depression of 1921 affected France and Germany most, and for three or four years the United States and Great Britain competed for first place, with the former country comfortably ahead.

In 1925, however, Germany's chemical traditions and experience once more began to exert their full weight, and by increasing her 1925 exports by more than half the 1924 values, that country became the premier chemical exporter, until in the following year exports were 50 per cent. ahead of the second exporting country —America. The export figures were then roughly as follows: Germany, £42,500,000; U.S.A., £28,500,000; Great Britain, £21,500,000; and France, £19,000,000. The coal strike, of course, has very adversely affected the position of this country, both in 1926 and the present year; though, latterly, there have been indications in the Board of Trade figures of a steady growth of exports.

As regards classes of chemicals, among Germany's strongest points (apart from her general strength) are synthetic ammonium sulphate and methanol; the United States is the world's greatest exporter of naval stores (rosin and turpentine), while there is also great interest in the pigment, paint, and varnish trades; Great Britain undoubtedly leads all other countries as an alkali exporter, and is also a very important shipper of coal tar products. Finally, France stands out as an exporter of essential oils, perfumes and perfumery materials, and potash.

Incidentally, the publication of world figures by one country will obviously lead to criticism of the basis of the calculations. In this connection a recent remark by Mr. W. J. U. Woolcock is of great interest: "It is a fact that is applicable to almost all industries, that manufacturers are generations late in realising the value of reliable figures; it is also a fact, however, that in every important country in the world manufacturers are awakening to a realisation of their needs *and obligations* in the matter. This change in ideas is one of the immediate causes of the interest which has attached itself to an important item in the conversations which have been taking place between industrialists in this and other European countries—namely, the unification of nomenclature and classification."

I.C.I. Labour Programme

We have received official information relating to certain terms in the I.C.I. Labour programme, which show that the conditions on which members of the staff may become shareholders are substantially more favourable than they were originally understood to be. The first interpretation was that a worker would be entitled to invest 20 per cent. of his total salary in ordinary shares, and that after five years' service he could invest an additional 1 per cent., so that a worker of 20 years' service would be entitled to invest 35 per cent. of his wages and salary. A worker in receipt of £200 a year would thus be entitled to £40 in ordinary shares on the preferential terms offered by the company. It now appears that the limit of 20 per cent. is merely an annual limit, and that the £200 a year man will be entitled to invest, not a total sum of £40, but £40 of his salary every year. This means that in the first five years the worker earning £200 could invest £200, and that for the total period of 20 years he could invest £1,040. The official interpretation which we are now authorised to publish shows that the terms are much more attractive to the working investor than they originally appeared to be.

Books Received

Introductory Chemistry for Schools. By W. R. Jamieson, London: Macmillan and Co., Ltd. Pp. 142. 3s.

Junior Practical Chemistry. By W. R. Jamieson. London: Macmillan and Co., Ltd. Pp. 318. 6s. 6d.

Senior Practical Chemistry. By W. R. Jamieson. London: Macmillan and Co., Ltd. Pp. 208. 5s.

The Higher Coal Tar Hydrocarbons. By Arthur Ernest Everest. London: Longmans, Green and Co., Ltd. Pp. 334. 18s.

Elements of Chemistry. By Harry N. Holmes and Louis W. Mattern. London: Macmillan and Co., Ltd. Pp. 520. 7s. 6d.

The Calendar

Nov.		
7	Society of Dyers and Colourists (Manchester Section): "Wetting-Out Agents and Other Auxiliary Products Used in Dyeing and Calico Printing." Dr. Rath. 7 p.m.	36, George Street, Manchester.
7	Society of Chemical Industry (London Section): "Recent Advances in the Hydrogenation of Oils." General Introduction by E. R. Bolton. 8 p.m.	Burlington House, Piccadilly, London.
7, 9, 11, 14, 16 & 18	University of London, University College: Gow Lectures: "The Colloid Chemistry of the Rubber Industry." Six Public Lectures by Dr. E. A. Hauser. 5.15 p.m.	London.
7	Institution of the Rubber Industry (London Section): "Permeability of Rubber and Methods of Measuring it." Dr. H. A. Daynes. 8 p.m.	Engineers' Club, Coventry Street, London.
8	Manchester Athenæum Textile Society: "Calico Printing and Fast Colours." J. A. Reekie. 7 p.m.	Athenæum, Manchester.
8	Institution of Petroleum Technologists, 5.30 p.m.	Royal Society of Arts, John Street, Adelphi, London.
8	Oil and Colour Chemists' Association: "The Scattering of Light by Suspended Particles." Part IX. "The Properties of Powders." Professor T. M. Lowry. 7.30 p.m.	Institute of Chemistry, Russell Square, London.
9	Institute of Metals, (Swansea Section): "Pyrometers in Works Practice." Dr. P. Machair. 7 p.m.	Thomas' Café, High Street, Swansea.
9	Institute of Metals (Sheffield Section): Conjoint meeting with kindred societies. 7.30 p.m.	University, Sheffield.
9	Society of Dyers and Colourists (Midlands Section). Joint meeting with the Society of Chemical Industry: "The Action of Chlorine and Hypochlorous Acid on Wool." S. R. Trotman, Dr. E. R. Trotman, and J. Brown. 7.30 p.m.	University College, Nottingham.
9	Society of Chemical Industry (Glasgow Section). Joint meeting with the Chemical Engineering Group and the Institute of Chemistry. "Research in the Textile Industry." C. M. Keyworth. 7 p.m.	39, Elmbank Crescent, Glasgow.
10	Institution of the Rubber Industry (Birmingham Section): "Industrial Application of Latex." Dr. P. Schidrowitz.	Grand Hotel, Birmingham.
10	Optical Society: Ordinary Meeting. 7.30 p.m.	Imperial College of Science and Technology, South Kensington, London.
10	Institute of Metals (London Section): "Some Metallurgical Problems of the Electrical Industry." C. C. Paterson. 7.30 p.m.	Royal School of Mines, South Kensington, London.
11	Physical Society. 5 p.m.	Imperial College of Science, South Kensington, London.
11	Oil and Colour Chemists' Association (Manchester Section): "Some Problems of Varnish Films." Dr. R. S. Morrell.	Manchester.

Chemical Fertilisers for the Empire

Vast Scheme of Research and Experiment

Sir Alfred Mond, at a luncheon that he gave in London on Wednesday, October 26, to the delegates attending the Imperial Agricultural Research Conference, outlined a vast scheme of agricultural research and experiment throughout the Empire, and indicated the policy of Imperial Chemical Industries to supply the chemical fertilisers required to give the best economic results. Sir Alfred's statement is printed below.

I DO not suppose that there has been a conference of equal importance, certainly not one of greater importance, so far as the future of our great Empire is concerned, than the conference which you have been holding under the guidance of my old friend and colleague, Lord Bledisloe.

Some less instructed people would probably imagine that conferences of politicians at various times laying down constitutional rules were really of more importance, but we who have inner knowledge know perfectly well that research, and above all agricultural research, properly carried on and co-ordinated, assisting those all over the vast, far-flung territories of our Empire, is more likely to produce results of fundamental and permanent value to all those engaged within the ambit of the British Empire than probably any other form of work that could possibly be done.

The Importance of Scientific Agriculture

The position of agriculture in the world is slowly being recognised. Curiously enough, although it is the most vast and fundamental industry in the world, it has, on the whole, been carried on without much regard to a scientific basis. It has, on the whole, been carried on by people who have worked hard and who have reaped on the whole very small, if any, reward. But throughout the history of the world it has been looked down upon as a thing which could be carried on by relatively uneducated people and as being of relatively small importance. If suddenly the agriculture of the world ceased for a very short time, we not having reached the stage of synthetic food production which the future may hold in store, those who have not regarded agriculture in the proper light would be surprised to find what a short time it took before starvation put an end to their earthly career and closed the long, laborious, and often tedious work of theorising on which they are engaged and which they think so important.

I am glad to think that Imperial Chemical Industries and its subsidiary operating company, Nitram, Ltd., is setting out to render real service and I hope increasing service to Imperial agriculture. Under the able guidance of Sir Frederick Keeble, whom I induced to leave the quiet retreats of Oxford in order to engage once more in a more vitalising life, we are now carrying out in co-operation with Government departments, private growers, and commercial corporations, trials of fertilisers in the various parts of the Empire.

Colonial Experiments

For example, in South Africa trials are being carried on in the Transvaal, Natal, Cape, and Rhodesia; in East Africa in Kenya, Tanganyika, and Nyasaland; in West Africa in Nigeria, the Gold Coast, and Sierra Leone; in North Africa, etc., in Sudan and Mauritius. In the West Indies trials are being carried on in Trinidad, Jamaica, and Demerara; in India, in Bombay, Ceylon and Burma; and also in Palestine in the Near East and in Australia. Outside the Empire trials of fertilisers are being executed in the United States of America, Egypt, China, and Japan, the East Indies, Belgium, and Spain. Both within and without the Empire the crops on which trials are being tested were beans, cocoa, coffee, cotton, coconuts, ginger, grass, limes, maize, potatoes, rice, rubber, sugar cane, tea, tobacco, and wheat.

Many of these trials are designed specially to test the suitability of nitro-chalk for use in tropical and sub-tropical countries. To that end we are making a study of the conditions of soil and climate and temperature throughout the Empire. Evidence has been obtained that this fertiliser is of great value for use within Great Britain, but it will not be produced for export until the results of the trials now being carried out have been received.

Thus we shall be able to devise that form of fertiliser best suited to each case. The day has gone when it is any use your trying to induce the agriculturist to use something because you happen to make it. Your object must be to find out for him what he wants, what is going to give him the best economic return, and then make for him that particular product. In that way he will be able to achieve an economic result which will enable him to use in increasing quantities fertilisers of all kinds.

New Fertilisers

We are trying out a whole series of new fertilisers in various parts of the world. Arrangements are now being made throughout the Empire, and have already been completed for certain parts of India and in Kenya, for carrying out trials on the suitability of the new fertiliser ammonium phosphate and nitro-phoska, for use in tropical and sub-tropical agriculture. Representatives of the company are studying conditions in South Africa and Australia with a view to determining to what extent phosphate deficiency and other deficiencies such as potash have been the reason why so little use was being made of nitrogen fertilisers in these countries.

Representatives are proceeding to India to investigate the fertiliser position of that country, and to study the best means whereby the company, if called upon to do so, can give effect to the proposals laid before the Royal Commission on Agriculture in India for a great scheme of co-operation in fertiliser propaganda between the Government of India and this country. Arrangements have also been made for co-operation between the Sudan Government and the company with a view to carrying out fertiliser trials in the Sudan.

We recognise the difficulties of Governments in obtaining from short-sighted Treasuries the necessary funds for carrying out this kind of experimental work, which in its ultimate effect must vastly increase wealth and happiness and economic prosperity, though to those of little imagination it appears to be a wasteful means of immediate expenditure. Through our possession of practical imagination, and also owing to our possession of the necessary funds, we are prepared to come in and help to co-operate, not merely with our knowledge, but also financially. It is a vast and important programme which will take considerable time to work out, although a very good start has been made. We hope to be able to solve a good deal by the work of a staff of researchers, economists, and agricultural experts, who by their knowledge, not of one problem but of problems all over the Empire, will be able to give advice and help of a real objective character to others who are working in the same field.

The importance of the present Agricultural Research Conference is generally recognised, and the company has proposed as a means of promoting Empire agriculture the establishment of a central Imperial body to assist all Imperial agricultural departments in all matters relating to fertilisers. The means proposed are, in the first place, to issue an authoritative handbook on the planning and recording of field trials and experiments; secondly, the collation and distribution of the results of fertiliser experiments carried out in the different parts of the Empire; and thirdly, the issue of summaries of new knowledge relating to fertilisers.

It seems that if the proposal is accepted at the Conference, it can best be carried out by co-operation between the proposed Soils Bureau and the representatives of the Ministry of Agriculture, of the Imperial Agricultural Research Conference, and of Nitram, Ltd.

You can rely on our wholehearted co-operation. We have embarked on what is really a great Imperial mission, not merely with the hope, which I am certain we shall achieve, of extending British industry, not merely with the idea of paying some dividend to our confiding shareholders, but still further with the idea of making still more independent and still more self-contained that great economic complex which calls itself the British Empire, and which, if united in action, united in work, united in thought, can achieve for itself a position unparalleled among the nations of the world in all the annals of history, a position above that which any other aggregation of human beings has ever had the opportunity of achieving in the history of the world.

Lord Bledisloe

Lord Bledisloe, speaking on behalf of the delegates, remarked that of all the wonderful and suggestive developments which the delegates had seen at Cambridge, Edinburgh, Aberdeen, Belfast, and elsewhere, they had probably seen nothing more wonderful than the Billingham enterprise. Sir Alfred Mond to-day was fulfilling the rôle that Sir John Lawes filled fifty years ago. He ventured at Billingham in his absence to suggest that probably no one combined within himself the rôle of eminent statesman, enthusiastic scientist, and leader of industry to the extent that Sir Alfred Mond did. If Sir John Bennett Lawes was the great prophet of phosphates, surely Sir Alfred Mond was to-day the great prophet of nitrate.

Free Acid in Ammonium Sulphate

Discussion by Newcastle Section of S.C.I.

THERE was a general meeting of the Newcastle section of the Society of Chemical Industry on Wednesday, October 26, when Mr. B. Richardson read a paper on "Free Acid in Commercial Ammonium Sulphate." The author referred to the development of the sulphate of ammonia industry during the war and post-war years, and to the manner in which the production of neutral sulphate by synthetic methods at home and abroad had brought home the advantages of such neutral sulphate to users. The advantages were so marked that the old acid salt stood in danger of being ousted from the market. Consequently, gasworks and coke oven works were compelled to produce the neutral form. The Federation, in turn, laid down a specification which limited the acidity in neutral salt to 0·025 per cent. of free sulphuric acid, and, in addition, specified a method of testing. This method had, in practice, been found to be anything but satisfactory, and it was felt that all those interested in the production of sulphate of ammonia would agree on that point. Mr. H. Dunford Smith had suggested to the author the use of a very old method in connection with the test, depending upon the liberation of free acid from a mixture of potassium iodide and potassium iodate thus:

$$KIO_3+5KI+3H_2SO_4=6I+3K_2SO_4+3H_2O.$$

The Iodide-Iodate Method of Analysis

An initial difficulty was found in the fact that pure neutral sulphate reacted with iodine and iodate. However, after repeated trials and experiments the following method had been evolved. Five grammes of the sample were dissolved in 20 or 30 c.c. of cold water, filtered and washed, the bulk of the washing being made up to 100 c.c. A small amount of potassium iodide and iodate were then added to the solution and allowed to react for fifteen minutes. The bulk of the solution was then made up to 400 c.c., a small quantity of starch solution added, and the blue colour discharged by titration with N/100 sodium thiosulphate. The latter solution was standardised by running alongside a blank test on five grammes of pure neutral ammonium sulphate. The method, said the author, might be far from perfect, but in the opinion of Mr. Dunford Smith and himself it was of sufficient interest to present immediately, although they were both still investigating the matter further. It was presented in the hope that other chemists interested would devote some little time to its investigation, so that a really trustworthy method might be evolved. It was quite certain that the present method was unsatisfactory.

Discussion

In the discussion, Professor G. R. Clemo asked whether the liberation of iodine by pure ammonium sulphate was not due to dissociation and subsequent oxidation. The effect of any pyridine present would, he thought, vitiate the test. Mr. Dunford Smith stated that the liberation of iodine as above took place up to $p_H 6$, but not at $p_H 6{\cdot}2$. Mr. A. M. Lowe thought the iodide-iodate reagent too delicate, since even carbon dioxide was sufficiently acid to affect it. He reaffirmed what he said at a meeting in Middlesbrough in February, 1926, that the essential point was the acidity of a saturated solution; that was the crucial thing, and he repeated his suggestion that the wording of the specification should be altered to read "a saturated solution of a salt shall not have a greater hydrogen ion concentration than a saturated solution of pure ammonia sulphate containing 0·025 per cent. of added sulphuric acid."

Merseyside Chemical Industries

Paper Before Liverpool Section of S.C.I.

THE opening meeting of the session of the Liverpool Section of the Society of Chemical Industry was held at the University of Liverpool on Friday, October 28, when there was an exceptionally large attendance.

The new chairman, Dr. Alfred Holt, read an interesting paper on "Chemical Industries and Merseyside." The geographical area of what was now termed Merseyside, he said, was the country which was within a fifteen miles radius of Liverpool, and which until about a century ago was an agricultural rather than an industrial area; at that time such chemical industries as there were, were grouped rather round Manchester than Merseyside. Their removal westward and their rapid expansion arose from the fact that on Merseyside, owing to development of transport facilities, fuel, salt, limestone, sulphur and pyrites could readily and cheaply be brought together, and these constituted the essential raw materials for the industry. Having referred to the fact that salt works were erected at the bottom of Mersey Street, in Liverpool, early in the eighteenth century, the chairman went on to speak of the great development which followed the operations of the weaver and the opening of the Bridgewater Canal with its terminus at Runcorn which marked the opening of the great era of canal making. The opening of these and other inland waterways resulted in salt being brought to the Mersey in ever increasing quantities in spite of the salt tax. In 1810, 345,896 tons of white salt and 94,400 tons of rock salt were brought to the Mersey, and thirty years later these figures were doubled.

Having given a history of the development of the salt trade and its effect on chemical industries, reference was made to the metallurgical industries such as iron and copper smelting, the establishment of works for the latter in Liverpool giving rise to the name "Copperas Hill," now a well-known thoroughfare of the city. A lengthy reference to the great glass industry established at St. Helens by the Pilkington family in 1798 followed, and the fact was mentioned that sugar had been manufactured in Liverpool since 1667, when a sugar house was started by a London man named Smith almost on the present site of Macfie's works. Other sugar houses were started in Dale Street, Rileys Gardens, and Castle Street. A century ago there were altogether 29 sugar refineries in Liverpool, and though the number had since decreased the importance and magnitude of the industry had progressed.

Miscellaneous Chemical Industries

The subjects of rosin and turpentine, smalt and ultramarine, carbon dioxide, candles, tanning and tanning materials, starch and gums, soap, alkali and acid, bleaching and chlorine compounds, salt, coal tar products, fertilisers and other industries were touched on, the rise and progress of the different firms associated with the respective industries being evidence of the chairman's deep research into the subject. In conclusion, the chairman said that from the *resumé* of the chemical industries of the district the great part played by the industrial chemist must be very apparent. Nearly fifty years ago the Society of Chemical Industry was established for the advancement of the craft of the industrial chemist, Merseyside being its birth place, and the Liverpool Section was the first of the many into which it was now divided. In a few more years, when its jubilee arrived, they might hope that the Liverpool Section and the Society as a whole would fittingly commemorate those who created not only it, but the huge chemical industries which had made Merseyside the centre of the heavy chemical trade in this country (applause).

Mr. Edwin Thompson, a past vice-president, said he hoped that through their secretary they would be able to persuade the authorities in London to publish Dr. Holt's address *in extenso*. Responding to the compliment, Dr. Holt suggested that if they really felt an interest in the chemical industries of Merseyside their records might be collected and published in the form of a small brochure.

Prior to the reading of the above paper, a business meeting was held. Eighteen new associate members were elected to the section. The Leverhulme prize was presented by the chairman to H. M. Walls, B.Sc.; the Society's senior prize to F. C. Dawson, a scholar at the Waterloo secondary school; and the junior prize to N. Glass, assistant analyst to Evans, Sons, Lescher and Webb.

Recent Developments in Continuous Filtration

A New Type of Continuous Vacuum Filter

WHAT is claimed to be a novel type of continuous vacuum filter, known as the Dorrco filter, has been recently introduced into chemical and metallurgical practice (see Fig. 3). Several special features of this filter are said to give it a relatively wider field of application than the usual types.

The machine is a vacuum filter of the rotary drum design, containing a filter medium on the inside of the drum, this filter medium being divided into sections or panels, making it possible to change the cloth panel by panel if desired. One end of the drum is open for the introduction of the feed, the

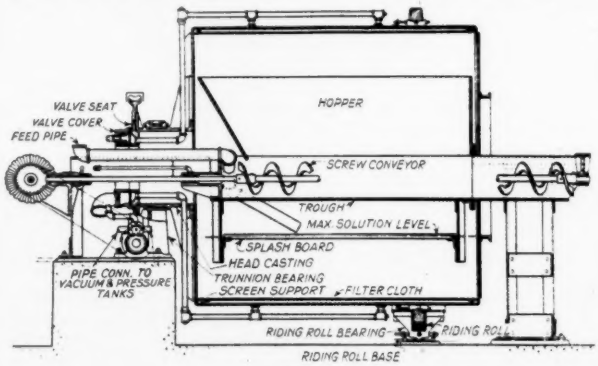

FIG. 1.

removal of cake, and the inspection of operation, and as the drum itself acts as a container for the pulp being filtered, the necessity for a tank with agitating mechanism is entirely eliminated (see Fig. 1). Arrangement is made so that in the event of overfeeding the machine the surplus pulp will pass to a spillage tank.

A trunnion bearing supports the filter at the closed end while at the open end support is given by a tire bearing on rollers. The drum is rotated by means of a worm and worm-gear drive, and turns in a clockwise direction. Suction for

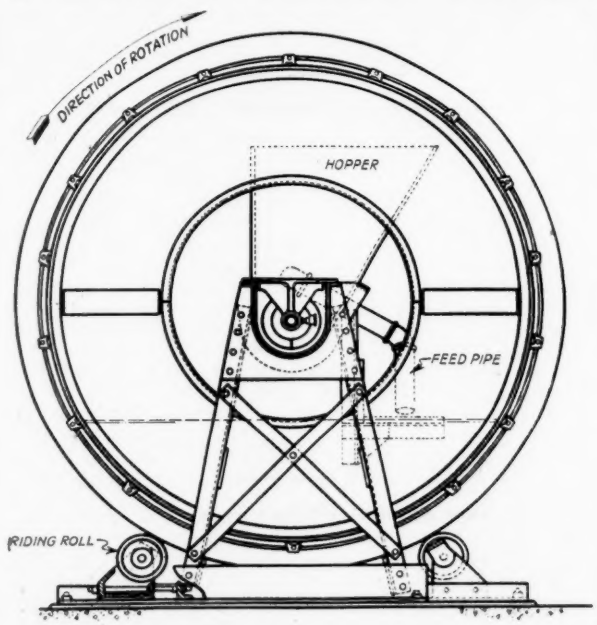

FIG. 2.

cake formation, drying and washing, and pressure air for cake discharge are applied to the panels through a port valve. All piping is placed on the outside of the drum, and is readily accessible.

The filter is particularly suitable for pulps containing granular material which settles out rapidly, for the segregating material falls into position on the filter medium. In drum and tank types of machine, segregation hinders the work of the filter, as the granular material forms banks on the bottom of the tank and allows the finer material to be drawn on to the cloth first, so tending to cause clogging. In the Dorrco filter a natural filter bed is formed. This is of much importance in the filtration of fine coal and many pulps occurring in ore dressing work.

The cake so formed on the inside of the drum is carried round to a point beyond the top of the machine where the filter cloth is caused to expand and contract suddenly, so that the cake falls readily and freely, leaving the medium clean. The solids drop into a hopper situated inside the drum and are removed by a screw conveyor (see Fig. 2).

The Dorrco filter has been introduced by the Dorr Co. of New York, and manufacturing and selling rights have been

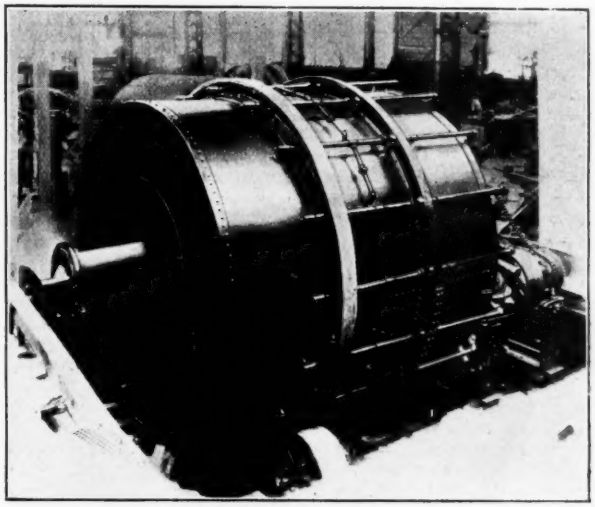

FIG. 3. A DORRCO FILTER.

obtained by the Dorr Co., Ltd., of 16, South Street, London, E.C.2. Data are given for the treatment of flotation and gravity concentrates which indicate that the Dorrco filter has definite advantages over other types for this work.

A New High-Efficiency Air Filter

A "SUPER FILTER," working on the same principles as others in the well-known range of Visco air filters, and with what is claimed to be nearly 100 per cent. efficiency, has been produced by the Visco Engineering Co., Ltd. This is designed on the same lines as the standard type, the filtering medium being metal rings coated with "Viscinol" closely packed between two grilles, but contains two cells in series. The second cell has a special filter medium, and has been designed to catch the fine dust passing the first. An air-tight joint is provided, and in some cases automatic louvres are provided on the inner side, so arranged that they may be closed when the filter cells are removed for cleaning.

When treated with a special germicidal solution the filters may be used for the removal of bacteria from air. The makers claim that their filters will remove 98 per cent. of the dust content of air, and that in the case of the super filters nearly 100 per cent. efficiency is obtainable. Owing to absence of moving or perishable parts running costs are stated to be low. Other forms of filters are made in the drum and box types, in the P-type for internal combustion engines, and the firm also specialises in special plants for the removal of dust from gases. Details of the filters are contained in a brochure obtainable on application to 162, Grosvenor Road, London, S.W.1.

Natural and Synthetic Fertilisers

The View of the Producers' Association

In a statement just made, Sir Arthur Goldfinch, delegate-general of the Chilean Nitrate Producers' Association, deals with the respective positions of synthetic and natural sodium nitrate. Sir William Crookes, he says, from the presidential chair of the British Association, at Bristol, in 1898, created a sensation by declaring that a time was near at hand when the deposits of Chilean nitrate would be exhausted, and the world would have to choose between famine and the reduction of population.

"Great publicity has recently been given to addresses by Sir Alfred Mond, in which he eloquently expounds the extreme importance of nitrogen in human life, and declares that all danger of nitrogen scarcity is now removed by the process for fixation of nitrogen from the air.

"Sir Alfred Mond omits to state that it is now known that the Chilean deposits are immensely greater than Crookes supposed. Even with a consumption of four to five million tons per annum, which I am afraid Sir Alfred Mond would very grudgingly concede, the known deposits would last a century more, and by that time many others will be located and brought into production. I think we may congratulate ourselves that Chilean nitrate and the various forms of synthetic nitrogen (sulphate of ammonia, etc.) can be advantageously sold side by side. The experience of Germany shows that it is of the first order of importance that farmers should be able freely to choose the form of nitrogen which best suits the soil, the crop and the season. I need only refer to the repeated warnings of Dr. Ramm, the German Secretary of State for Agriculture, against the destruction of fertility by the excessive use of sulphate of ammonia without a proper proportion of nitrates and of lime.

The New Physiology

"I am sure the Imperial Research Conference, which Sir Alfred Mond was addressing, will give due importance to other elements which may prove to be of no less value than nitrogen. Major Elliot, who has watched on behalf of the Government the research work of the Rowett Institute on the mineral content of the soil, recently spoke of 'the new physiology beginning to sketch itself before our eyes,' and of 'the tiny traces of inorganic elements . . . whose interplay may be nothing less than the working of life itself.' The iodine content of Chilean nitrate, even though it is not more than 1 per 5,000, may restore the balance of nature, and have incalculable effects on public health. Research work now being carried on quite independently in Germany and England justifies the belief that it will very shortly be scientifically established that minute quantities of iodine derived by plants from the soil are an indispensable element in the nutrition of men and cattle. Without this element, which in many districts is dangerously lacking in soil and water, deficiency diseases are rife, the general standard of health is lowered, and a liability to contract contagious diseases of all kinds is promoted.

"The City of London has played so important a part for the past fifty years in developing Chilean nitrate production, and English capital is so deeply concerned in the transport of nearly 3,000,000 tons per annum by land and sea, that it may be of interest to many to be assured that Chilean nitrate will play an equally important part, in the new nitrogen era which Sir Alfred Mond predicts, as it did in the pioneer stages which we have left behind us."

Diatomaceous Earth Deposits in Nova Scotia

The manufacture of firebrick, insulators and high-grade cement from diatomaceous earth will be encouraged by the pending development of a large deposit of the latter at Digby Neck, Nova Scotia, one of the largest deposits on the Atlantic seaboard, the bed being estimated to comprise over 1,000,000 tons. One field alone, just surveyed, contains 300,000 tons. Test holes as deep as 32 ft. have not yet struck bottom. Exploitation will be started immediately by the Nova Scotia Diatom Products Co., according to Mr. R. E. G. Burroughs, the president. Canadian and United States manufacturers are at present deriving supplies almost entirely from California.

Chemical Industry Club Annual Meeting

The annual general meeting of the Chemical Industry Club was held at the Club on Monday, Dr. W. R. Ormandy in the chair. The annual report of the Executive Committee, and the accounts and balance sheet, were adopted.

The officers and executive committee elected for the year 1927/8 are as follows: President, Professor F. G. Donnan, F.R.S.; chairman of committee, Dr. Frank B. Dehn; hon. treasurer, Mr. T. Miller-Jones; hon. secretary, Dr. E. H. Tripp; committee: Mr. J. W. Black, Mr. E. T. Brewis, Mr. A. J. Chapman, Mr. W. H. Coleman, Mr. R. L. Collett, Mr. A. G. Craig, Professor J. C. Drummond, Mr. F. A. Green, Mr. H. F. Knight, Mr. G. S. W. Marlow, and Mr. J. F. Ronca; secretary, Mr. J. A. Williams.

An interesting discussion took place with reference to the general activities of the Club, and several speakers suggested that some of the funds placed to reserve account might with advantage be spent for extending the amenities of the Club and still further increasing the advantages afforded to its members. It was apparent from the discussion that the Club was in a sound financial position and that the suggestions made should lead to further developments.

The meeting terminated with a very hearty vote of thanks to Dr. W. R. Ormandy, who retired after having occupied the chair for the last two years.

National Union of Drug and Chemical Workers

Mr. Wilson Coates, national organiser, writes: "While one is in agreement with the proposal to set up a General Chemical Council for the British chemical industry, and also the need for a Chemical Register, we must take strong exception to the suggestion that the Chemical Council should be confined to societies only whose membership is made up of chemists. The suggestion is calculated to set up a monopoly to control merit and achievement, whereas we claim that a General Chemical Council should be made up of representatives from every organisation, not only of chemists but of chemical workers, because it would be very difficult in many cases to distinguish between the two, and because we believe that the way should be wide open for men of merit and achievement, even though the man may be a labourer. The British professions are a standing example of class privilege and monopoly. Any attempt to set up a corresponding set of restrictions and reservations in the chemical industry will meet with widespread opposition both industrially and politically."

Recent Work on Phosphatic Fertilisers

An Italian chemist, Professor Palazzo, of the Institute of Agriculture of Florence, has developed and patented a process for the manufacture of mixed concentrated phosphates containing phosphoric anhydride at once soluble and semi-soluble, and of absolute phosphates which represent the maximum concentration practically obtainable in phosphoric acid fertilisers, being formed of almost pure monocalcium phosphate. The new process affords possibilities where hydro-electric power is available at low cost, and where low-priced raw materials are obtainable (such as by-products from electrolytic soda, sulphuric acid, lime, combustibles, phosphorites, bone meals, etc.), and the principal advantages claimed for it over the industrial processes heretofore applied are, among others, that it permits utilisation on the widest scale of the products of electrolytic soda for the production of concentrated phosphatic fertilisers.

Action Against China Clay Co.

In a debenture-holder's action brought by Mr. C. C. S. Barry against the West Hensbarrow China Clay Co., Ltd., St. Austell, Mr. Justice Astbury, in the Chancery Division on Tuesday, appointed a receiver and manager of the defendant company. Mr. Lavington, for the plaintiff, said the company did not appear. The debenture money was due, as no payment of interest had been made for five years. Although the company had made no profits, there was evidence that the company was assessed for income-tax at £1,000. The plaintiff had £500 worth of debentures.

Lawes Chemical Manure Co.: General Meeting.

STRONG criticism of the balance sheet was made at the fifty-fifth ordinary general meeting of Lawes Chemical Manure Co., Ltd., which was held in London on Thursday, October 27, Mr. E. O. Cubitt (chairman) presiding.

The chairman, in moving the adoption of the accounts, said that at previous meetings there had been some discussion about depreciation since 1920. The matter had been thoroughly investigated. The sum of £32,800 had been written off between 1913 and 1920. The amount required to provide adequate depreciation, not only to 1920, but to 1927, would be £31,336. Since large amounts had been spent annually in keeping the works and plant in efficient working condition, the directors considered that the depreciation written off was adequate. The results of the past year's working showed an improvement as compared with 1926, but those results were inadequate in view of the work expended and capital employed. That was mainly due to the intense competition from the Continent, to the agricultural depression in this country, and to the effect of the coal strike upon transport. Mr. Goff said that the explanation with regard to depreciation did not satisfy him, and thought that the shareholders should have a statement from the auditors as to whether sufficient depreciation had been written off. He was supported by several other shareholders. Mr. May said that he thought the company should be wound up, and, with that end in view, he would support the suggestion that a committee of investigation should be appointed to look into matters. Eventually the chairman undertook, on behalf of the board, to call a meeting of the company within three months for the purpose of appointing a committee of investigation of shareholders. On this undertaking the report and accounts were adopted.

Four Killed by Carbon Monoxide

THE inquest was opened at Manchester on Friday, October 28 on the four victims of the fumes tragedy at Legh Place, Ardwick. The victims were: Hilda Standize, 8; Winifred Standize, 12; Edith Gibbons, 17, step-sister of the first two; and Mrs. Mary Connor, 48, a lodger in the house. All four were found dead in the same room. A technical witness gave evidence that a culvert leading up to the house had been excavated, and it was found that an electric cable had fused near a disused drain. He had examined the house, and there was a hollow wall which would allow any gas and fumes to enter the house. Police-sergeant Dodds said that when he entered the house he noticed a slight smell of gas in the middle rooms. There was a strong smell of gas in the front basement. The gas in the cellar was not necessarily coal gas. It was something pungent and unexpected. Walter Breeze, foreman in the employ of the corporation gas department, said he examined the gas main, and found no leakage, but there was a crack where the electric cable had been burnt out. The fracture might have been caused by heat. The gas main and electric cable were 5 in. apart. Mr. H. Heap explained that the heat generated by the cable fusing was sufficient to cause a distillation of the insulating material, and on this coming in contact with the oxygen in the air it would result in the production of carbon and carbon monoxide. The blood of all four victims of the tragedy showed traces of carbon monoxide. The coroner returned a verdict of death from misadventure.

Physics in the Food Industry

THE Institute of Physics announces the thirteenth lecture of its series "Physics in Industry," which is to be given at 5.30 p.m. on Monday, November 14, 1927, in the rooms of the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2. The lecturer on this occasion will be Sir William Hardy, Director of Food Investigation at the Department of Scientific and Industrial Research, and his subject, "Physics in the Food Industry." The application of physical methods to the conservation of food resources is a subject of national importance, and the lecture should be of considerable interest to a far wider public than the membership of the Institute. The Board of the Institute wishes it to be known that it is open to the public without charge. Admission is by ticket, and tickets may be obtained on application to the Secretary, The Institute of Physics, 1, Lowther Gardens, Exhibition Road, London, S.W.7. The chair will be taken by the President of the Institute, Sir Frank Dyson.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries:—

83 (*Tetraethyl lead*).—"Can you let us know who manufactures the compound known as tetraethyl lead, used to prevent detonation in internal combustion engines?"

Voluntary Liquidation of China Clay Co.

A MEETING of the creditors of Great Rosemellyn China Clays, Ltd., Devonshire Square, Bishopsgate, London, and the Mine, at Roche, Cornwall, was held on Monday, at the offices of Muir, Moody and Co., I.A., of 20, Newgate Street, London. The chair was taken by the liquidator, Mr. Montague H. Moody, who said that he was appointed on October 12 last. Since his appointment he had made application for the books and papers, but had not received them. It was therefore impossible to place any figures before the meeting. He added that he had received notification of claims from trade creditors amounting to £1,082 16s. 9d., and notification of other claims amounting to £5,290. They were all subject to investigation. The chief asset of the company consisted of the lease of the mine, and the plant and machinery on it. The mine was mortgaged to the bank under a deed dated April 17, 1925, and in respect of that mortgage the bank claimed £7,423 12s. 4d. The bank had notified the liquidator of their intention to offer the mine for sale by auction at an early date. Mr. Moody went on to say that a sum of £305 was due to the Great Western Railway Co. in respect of the construction of a siding at the mine, and they claimed a lien in respect of that siding. There was also a claim for £6,000 made by Sir William Sargent in respect of breaches of covenant under the lease. There were also liabilities for income tax and land tax, the amount of which had not yet been ascertained. One of the directors of the company said that the mine was a most valuable one. The meeting broke up without any resolutions being passed.

"Tea Time Talks"

THE Individualists are holding tea-parties every Monday afternoon in their fine new shop at 84, Charing Cross Road. Each Monday at 5 o'clock one of the authors whose works adorn the shelves of the shop will talk, while Miss Betty Benn presides over the tea cups.

On November 7 Sir George Paish will discuss "Capital and Its Influence on Progress." The following Monday, November 14, Professor Hearnshaw will be the speaker, and to those who accept the invitation for November 21, Sir Ernest Benn will explain how he came to write about capitalism. The following week Mr. Harold Cox (who is unfortunately not available on Mondays) will give an address on Wednesday, November 30. Mr. Francis Hirst, the greatest of the later editors of *The Economist*, will speak on "Public Expenditure," for he, with Mr. Hartley Withers, Mr. Ellis Barker, and Dr. Shadwell, is among those who have promised to talk at a later date.

It is intended to dispense with all the formalities of a lecture, and the Individualists will be "At Home" in the accepted sense of the term. Callers will be expected, however, to arrive punctually at 5 o'clock and to remain for three-quarters of an hour, and will also be required to pay sixpence for their tea.

Vacant Appointments

Professor of Organic Chemistry, Pure and Applied, in the University of Sydney, New South Wales. £1,100. The Agent-General for New South Wales, Australia House, Strand, London, W.C.2. November 9.

Research Chemist for plasters, etc., for dentistry. £500. The Secretary, Department of Scientific and Industrial Research, 16, Old Queen Street, London, S.W.1. November 7.

Chemical Assistant for work in the laboratories of the Research Association of British Flour Millers, St. Albans. £130. The Director of Research.

An Engineering Assistant to collaborate in the equipment and maintenance of a chemical laboratory with small and large scale researches. £5 per week. The Director, Chemical Research Laboratory, Teddington, Middlesex. November 11.

From Week to Week

SIR FRANK MEYER has been elected a director of De Beers Consolidated Mines, Ltd.

THE PARAZONE CO., LTD., 203, Carntyne Road, Glasgow, chemical manufacturers, has been admitted to membership of the Glasgow Chamber of Commerce.

MR. JAMES KEMP, late managing director of J. and N. Philips and Co., Ltd., Manchester and London, has taken up an important appointment with British Celanese, Ltd.

THE MANCHESTER FIRM OF HENRY SIMON, LTD., have received a contract for £800,000 from the Buenos Aires Great Southern Railway Co., for the erection and equipment of a granary at Bahia Blanca.

THE ENTIRE BUSINESS AND FREEHOLD ESTATE, clear of all liabilities, of Loftine, Ltd., has been acquired by Mr. Langley Shaw, the inventor of "Loftine," "Comb-ax" and "Clever Mary" colloidal soaps.

THE BRITISH ASSOCIATION OF CHEMISTS will hold its annual dinner at the Hotel Victoria, Northumberland Avenue, on Saturday, November 26, at 7 p.m. A number of eminent guests will be present. Details are given in our advertisement columns, under "Official Announcements," on p. xxiii.

MR. J. LLOYD BENTLEY, chief chemist and metallurgist at the Redcar Iron and Steel Works, was last week presented with a grandfather clock by officials and workmen of the company, upon his leaving to take up the position of manager at the works of Robert Heath and Low Moor, Ltd., Stafford.

PHILIPP AND LION, metal and mineral merchants, will move their offices on November 11, from 2, Broad Street Place, London, E.C.2, to 28, Finsbury Square, E.C.2; telephone, Clerkenwell 0991/2/3, private branch exchange. Telegrams: England, "Cufeniag, Fin Square London"; Foreign, "Cufeniag, London."

THE "ALLTEST" multi-range portable moving coil instrument, which is being put on the market by A. Gallenkamp and Co., Ltd., has been developed as a pocket portable direct current testing instrument, for which it is claimed that it is extremely light in weight and easy to handle. With the use of shunts and resistances a wide range of readings can be obtained on the instrument.

AN EFFORT TOWARDS THE CONSOLIDATION OF BRITISH TRADE in Australia will be made at Melbourne next year when an exhibition of goods manufactured only in this country will be held from February 23 to April 10. The exhibition will be treated as a bonded warehouse so that no duty need be paid on exhibits returned to this country, and various steamship lines have agreed to grant reduction of freight rates. The Exhibition Section of the Federation of British Industries controls the booking of space, and details may be obtained from them.

IT IS UNDERSTOOD, says *The Times*, that substantial purchases of Chilean nitrate have in the last few months been made by Russia. The nitrate is described by the merchants as being of the high grade refined quality, which is used exclusively for the production of explosives. It has been bought in Chile, the financing having been arranged in Berlin, and down to date the total understood to have been purchased is upwards of 50,000 tons, while negotiations are in progress for more. Last year Russia's purchases amounted only to about 2,000 tons.

INSTITUTE OF CHEMISTRY NEWS.—The annual general meeting of the Glasgow and West of Scotland section of the Institute of Chemistry was held on Friday, October 28, in the Royal Technical College, Glasgow. Professor F. J. Wilson occupied the chair. The following office-bearers were elected for the ensuing year:—Mr. F. W. Harris, City Analyst, Glasgow, chairman; Professor F. J. Wilson, vice-chairman; Dr. P. F. Gordon, hon. secretary; Mr. J. W. Hawley, hon. treasurer; and Mr. T. J. R. Alexander, Mr. H. Findlay, and Mr. D. N. M'Arthur, members of committee.

SEVERAL ARTICLES OF INTEREST to power plant engineers are contained in the October issue of *Concord*, the house organ of The Liverpool Borax Co., Ltd., Feed Water Specialists Co., and Andrew Maxwell. An interesting suggestion is that of the use of flashlight photography to obtain records of the state of boiler interiors. Other articles deal with "Differential Aeration, Corrosion of Metals," and "Boiler Inspection and Service." A contribution on microscopy and another on advertising together with a leavening of humour go to complete an attractive and well produced magazine.

A MEMORIAL TABLET to Michael Faraday was unveiled at the Central Library, Southwark, on Friday, October 28, by Sir Oliver Lodge, and a special collection of reference books dealing with the sciences, particularly electricity, in which Faraday worked so successfully, was also inaugurated. The books have been provided by voluntary effort as a memorial to the great scientist, and a fund has been established which will enable further purchases of books to be made for the benefit of students. Among the large company present were Sir William Bragg, a successor of Faraday at the Royal Institution, and also several relatives of Faraday.

MR. D. HARVEY has been appointed by the Secretary of State for the Colonies to be chemical officer for Kenya.

THE OFFICES OF THE INSTITUTE OF FUEL have been removed to 53, Victoria Street, London, S.W.1. Telephone number: Vic. 1735. Mr. P. C. Pope is the secretary.

THE COAL CHEMISTRY CO. has been founded at Essen with a preliminary capital of 500,000 marks to combine the chemical interests of the Ruhr mines in the matter of coal utilisation.

UNIVERSITY NEWS.—*Cambridge*: At a Congregation of the Regent House on October 28 Professor J. C. Philip was appointed an elector to the professorship of physical chemistry in the place of the late Sir James Dobbie.

THE CHEMICAL SOCIETY RESEARCH FUND COMMITTEE will meet in December next. Details regarding applications for research grants, etc., are given in our advertisement columns, under "Official Announcements," p. xxiii.

C. T. BOWRING AND CO., LTD., manufacturers of basic slag, have secured the licence to manufacture for the North of England Damman asphalt, and have erected a mill for the purpose at their Longhill Works, West Hartlepool.

DEAN INGE will deliver the third annual Norman Lockyer Lecture of the British Science Guild, taking as his subject "Scientific Ethics," on Monday, November 21, at 4 p.m., in the Goldsmiths' Hall, Foster Lane, London, E.C.2. Sir Alfred Mond will take the chair. Admission to the lecture is free, and tickets may be obtained on application to the secretary of the British Science Guild, 6, John Street, Adelphi, London, W.C.2.

SIR ALFRED MOND, M.P., was the principal speaker at a meeting organised by the Empire Industries Association, held on Wednesday afternoon in the Cannon Street Hotel, London. Taking as his subject "An Empire Economic Unit," Sir Alfred pointed out that the recent economic tendencies of the world were in national industries towards amalgamation, in international industries negotiation and cartels, and in Imperial industries amalgamation and rationalisation.

AT THE ORDINARY GENERAL MEETING of Lewis Berger and Sons, Ltd., held on Tuesday, Sir Herbert Hambling, who presided, said that during the past year the company's business in the United Kingdom had progressed satisfactorily, assisted partly by the sales of Luc and Proxcelin nitrocellulose enamels. In reply to a question, he said that there was not a particle of truth in the rumour that Lewis Berger and Sons, Ltd., was about to be merged in, or absorbed by, some other company.

THE MINISTRY OF TRANSPORT intends to hold an inquiry into the revised petrol by-laws framed by the Port of London Authority, which will not become operative unless sanctioned by that department. Objections have been lodged with the Ministry by the L.C.C. to the proposal that tank vessels of any size carrying petrol should be permitted to discharge their cargoes at Purfleet, instead of at Thames Haven, fifteen miles lower down the river, whilst vessels laden with less than 1,250 tons should be allowed to go to any berth below Bow Creek.

UPWARDS OF ONE HUNDRED gas managers and conveners from different parts of the country were present at Coatbridge Gas Works on Friday, October 28, at the inauguration of the new installation of Glover-West vertical retorts, which supplements and extends the installation built in 1921. The new retorts, eight in number, have a total carbonising capacity of forty-eight tons a day. We have received from the Coatbridge Gas Co. an art brochure, in which is given a history of the company, details of its continuous extension, and a description of the latest installation.

ARTIFICIAL SILK NEWS.—A new Celanese factory has just been opened in the province of Quebec, which is employing 300 workers and in the near future will employ 3,000.—On behalf of a syndicate, Mr. John Livesey purchased at Wigan on October 31 the cotton weaving premises, Poolstock Mill, for £22,500, for the purpose of conversion to the manufacture of artificial silk fabrics. It is expected that in a short time employment will be found for 600 workers in the mill.—The board of directors of the Netherlands Artificial Silk Factories have decided to extend the factory at Arnheim to about double the present size, necessitating the employment of a further 1,000 workers.

BEET SUGAR NEWS.—It is now evident that the 1927 yield of Belgian sugar beet will be much better than that of 1926. It appears that the average sugar content is 16 per cent. and in some cases as much as 18·7 per cent., the average weight of roots being 600 grammes.—The Anglo-Dutch group has undertaken to build a new factory for the season of 1928 on a site near Chichester provided that beet from at least 8,000 acres within a 30-mile radius has been secured on definite contracts for three years.—All the sugar factories and refineries in Czechoslovakia have now notified their adhesion to the new cartel agreement which is to remain in force until the season of 1936–37.

Obituary

MR. G. H. PERCIVAL, a member of the staff of Brunner, Mond and Co. (India), Ltd., at Bombay, recently.

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ORGANIC.—A new method of hydrolysis of amides and nitriles. G. Berger and S. C. J. Olivier. *Rec. Trav. Chim. Pays-Bas*, October 15, pp. 600–604 (in French). Deals with the use of phosphoric acid for the purpose, the latter having been found very efficacious.

1-Nitro-2-methylanthraquinone. A. Locher and H. E. Fierz. *Helvetica Chimica Acta*, Vol. 10, part 5, pp. 642–670 (in German).

Bromination of cresols. Y. Oshima and T. Takahashi. *J. Soc. Chem. Ind. Japan*, September, pp. 163–166B (in English).

SOYA BEAN.—Nitrogen distribution of soya bean protein. M. Mashino and S. Nishimura. *J. Soc. Chem. Ind. Japan*, September, p. 156B (in English).

The purification of soya bean protein. M. Mashino. *J. Soc. Chem. Ind. Japan*, September, p. 157B (in English).

Catalytic decomposition of soya bean oil by active carbon. S. Haga. *J. Soc. Chem. Ind. Japan*, September, pp. 157–158B (in English).

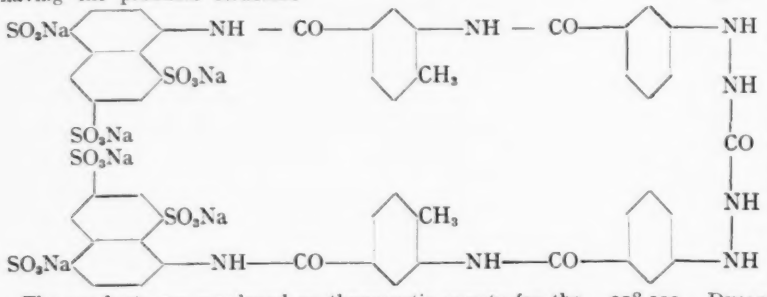
Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

278,037. Carbazides and Thiocarbazides of the Naphthalene Series, Production of. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester, G. M. Dyson, 16, St. John Street, Manchester, F. A. Mason, Crumpsall Vale Chemical Works, Blackley, Manchester, and A. Renshaw, 16, St. John Street, Manchester. Application date, May 25, 1926.

These products are obtained by treating nitroaryl-olefinic-carboxylic acid chlorides, chlorides of nitroaryl fatty acids, nitroaroyl chlorides, nitroaryl-sulphochlorides, nitronaphthoyl-chlorides, nitronaphthalene-sulphochlorides, or their substitution products with aminonaphthalene sulphonic acids or their substitution products or amino-acenaphthene sulphonic acids or their substitution products. Products are obtained substituted in the amino group of the aminonaphthalene sulphonic acids or amino-acenaphthene sulphonic acids, which after reduction of the nitro group in the substituent, and diazotisation and reduction of the new amino group yield hydrazines which are treated with phosgene or thiophosgene to obtain the corresponding carbazides or thiocarbazides. An example is given of the process for preparing a compound having the probable structure



The products are employed as therapeutic agents for the destruction of blood parasites, and as dyestuff intermediates.

278,039. Dyestuffs and Dyestuff Intermediates. W. Smith, J. Thomas, and Scottish Dyes, Ltd., Earl's Road, Grangemouth, Stirling. International Convention dates, May 26 and June 10, 1926.

1-Halogen-2-urethane-anthraquinone derivatives are submitted to a mild condensation process by treating with a metal with or without a diluent. The process may be carried out by dry baking with finely divided copper, or alternatively by suspension of the substances in nitrobenzene or naphthalene. The condensation may be effected at a temperature lower than that required for the formation of flavanthrone bodies to obtain substances of the dianthraquinonyl type. The latter may be purified by means of monochlorbenzol or other solvents. The dianthraquinonyl derivatives may be hydrolysed in presence of concentrated sulphuric acid, or may be treated with alcoholic potash to effect hydrolysis and form flavanthrone. Examples are given.

278,041. Cracking, Catalysing, and Hydrogenation of Carbonaceous Materials. A. E. Bianchi, 11, Via Marsala, Milan, Italy, and G. Guardabassi, Rho, near Milan. Application date, May 27, 1926.

The process is for treating mineral grease, oils, tar, naphtha, ground coal, etc. The dust rising from the materials treated is retained in the reaction chamber as long as possible, to promote the reaction. The material is continuously passed through a heated retort in a film or layer, in the presence of catalysts. Revolving agitators are provided, and the gases are passed through a cloud of dust or smoke at the same temperature, and through a screen formed of suspended chains, which may be coated with a catalyst and may be vibrated continuously. The apparatus used is that described in Specification 277,404 (see The Chemical Age, Vol. XVII, p. 372).

278,047. Dibenzanthronyls, Production of. J. Y. Johnson, London, and I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, May 31, 1926. Addition to 203,533.

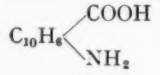
Specification 203,533 (see The Chemical Age, Vol. IX, p. 400) describes the treatment of benzanthrone or its derivatives and analogues with alkaline condensing agents to obtain 2 : 2′-dibenzanthronyls. It is now found that these products can be obtained by replacing the benzanthrones with mixtures of 2-halogen-benzanthrones or its substitution products with benzanthrone or its derivatives, all having a free 2-position. The reaction proceeds under more moderate conditions than are required for the formation of vat colouring matters. Several examples are given.

278,093. Lead Chloride or Basic Chloride, Treating in connection with the winning of Lead from Ores, Residues, etc. S. C. Smith and The Chemical and Metallurgical Corporation, Ltd., 701, Salisbury House, London Wall, London, E.C.2. Application date, July 2, 1926.

Specification 237,308 (see The Chemical Age, Vol. XIII, p. 230) describes the conversion of lead chloride into lead carbonate by suspending it in ammonia solution and passing carbon dioxide through it. It is now found that if the product is to contain the minimum proportion of lead chloride, the carbon dioxide should be passed into the suspension at a rate not much greater than the rate of its absorption, so that carbon dioxide is not present as such in the liquor.

278,100. Dinaphthyl-dicarboxylic Acids, Process for the Manufacture of. W. Carpmael, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, July 6, 1926.

Dinaphthyl-dicarboxylic acids of the general formula $(C_{10}X_6)_2(COOH)_2$, in which X represents hydrogen atoms of which one or more may be replaced by a monovalent substituent, are obtained by treating diazo compounds of aminonaphthoic acids of the general formula:



with ammoniacal cuprous chloride. All the theoretically possible acids, their derivatives and nuclear substitution products derived from all ortho- and peri-amino naphthoic acids can be obtained in nearly theoretical yield. A number of examples are given of the treatment of 1 : 8-, 2 : 3-, and 1 : 2-aminonaphthoic acids, and various derivatives and substitution products.

278,102. Vat Dyes and Intermediates, Manufacture of. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester, A. Shepherdson, and A. J. Hailwood, Crumpsall Vale Chemical Works, Blackley, Manchester. Application date, July 7, 1926.

Pyranthrone is oxidised in sulphuric acid solution with manganese dioxide, yielding substances which dye cotton from a hydrosulphite vat in purple shades not fast to weak acid and alkali. The products may be treated with sodium bisulphite solution and then alkylated, yielding dyes giving brown shades fast to the action of weak acid, alkali, and chlorine. The crude product prior to treatment with alkylating agents may be purified by extraction with nitrobenzene.

(*Continued on page* 419)

(*Continued from page 418*)

278,112. Dyestuffs and Intermediates. R. F. Thomson, J. Thomas, and Scottish Dyes, Ltd., Earl's Road, Grangemouth, Stirling. Application date, July 13, 1926.

Specification 251,313 (see The Chemical Age, Vol. XIV, p. 550) describes the treatment of benzanthrone to obtain a substantial proportion of a dibenzanthronyl body. It is now found that if the oxidation of benzanthrone in sulphuric acid solution with manganese dioxide is conducted at about 0° C., a purer end product is obtained. The yield may be extracted with alkali for the production of oxy-benzanthrone. The production of the dibenzanthronyl may be folfowed by alkali fusion of the product to obtain dibenzanthrone of a high degree of parity.

278,235. Cracking Hydrocarbons, Process and Apparatus for. H. J. Jansen, jun., Lange Haven 19, South Holland, The Netherlands. Application date, February 7, 1927.

The material is cracked by passing through a bath of molten lead, or zinc chloride, or molten lead covered by zinc chloride. The bath of molten material is constituted by two

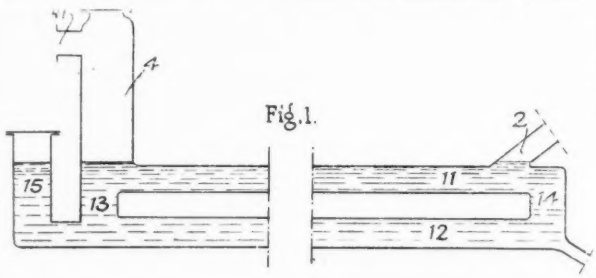
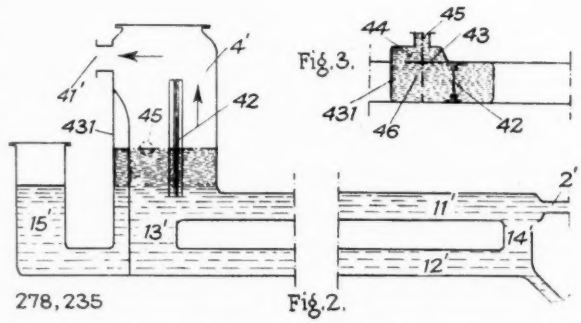


Fig.1.



278,235 Fig.2.

horizontal pipes 11, 12, connected by short pipes 13, 14. The molten material is filled through a container 15, and oil is admitted at 2. A chamber 4 of small cross section has an outlet 41 for vapour, leading to a dephlegmator and condenser. When hydrocarbon is introduced, the molten material is circulated in the direction 11, 13, 12, 14, and the cracked products together with carbon dust are drawn off at 41. This apparatus is suitable for oils leaving no liquid residue. If a liquid residue is formed, the chamber 4 is provided with a partition 42 dipping into the liquid and with another partition 43 at right angles reaching to the bottom of the vessel and to the wall 431. A lateral chamber 44 has an outlet 45 for the liquid residue. Circulation of the molten material causes the liquid residue to pass intermittently under the partition 42 to the chamber 46 and then round the wall 43 to the chamber 44. The vapour escapes at 41'.

Note.—Abstracts of the following specifications which are now accepted, appeared in The Chemical Age when they became open to inspection under the International Convention: 251,651 (I.G. Farbenindustrie Akt.-Ges.), relating to therapeutic agents, see Vol. XV, p. 87; 255,900 (I.G. Farbenindustrie Akt.-Ges.), relating to azo dyestuffs, see Vol. XV, p. 355; 256,622 (W. Kyber), relating to fused cement and gases containing phosphorus, see Vol. XV, p. 377; 258,835 (W. and H. Mathesius), relating to manufacture of steel in open hearth furnaces, see Vol. XV, p. 47 (Metallurgical Section); 260,236 (I.G. Farbenindustrie Akt.-Ges.), relating to continuous distillation of crude carbon bisulphide, see Vol. XVI, p. 29; 262,136 (J. Maximoff, M. S. de Costa, and R. P. D. Krebs), relating to refining steel and pig iron, see Vol. XVI, p. 15 (Metallurgical Section); 265,624 (I.G. Farbenindustrie Akt.-Ges.), relating to catalytic oxidation of carbon monoxide, see Vol. XVI, p. 381; 266,735 (I.G. Farbenindustrie Akt.-Ges.), relating to treatment of crude sodium nitrate, see Vol. XVI, p. 486.

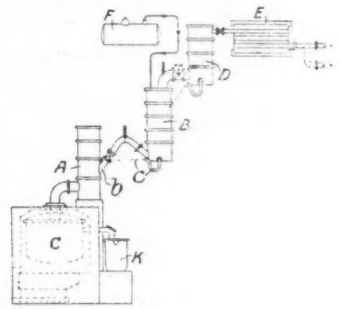
International Specifications not yet Accepted

270,687. To remove organic compounds of sulphur, phosphorus, and arsenic from hydrogen, the gas is passed at a raised temperature and pressure over a catalyst having an atomic weight between 51 and 65, excluding copper, or an oxide of such metal. The temperature may be 200°-500° C. and the pressure 100 atmospheres, with a catalyst of nickel and aluminium oxide. The impurities are converted into compounds such as methane and hydrogen sulphide, which may be absorbed in any known manner.

276,968. Indiarubber. E. I. Du Pont de Nemours and Co., Wilmington, Del., U.S.A. (Assignees of H. W. Elley, 2307, Seymour Road, Wilmington, Del., U.S.A.) International Convention date, August 31, 1926.

The ageing of rubber is improved by the addition of phenyl-α-naphthylamine, diphenylamine, ditolylamine, dixylylamine, or tolyl-α-naphthylamine. The amine can be applied in solution to the surface of rubber articles before or after vulcanising, or the articles may be exposed to the vapour.

276,972. Sulphuric or Nitric Acids. W. Büsching, 53, Forsterstrasse, Halle-on-Saale, Germany. International Convention date, September 3, 1926.



276,972

Sulphuric acid vapour from a concentration boiler C passes by pipe *b* to a denitration column B, and waste acid from a preliminary heater F passes through the column B in counter-current. Nitric acid vapour passes to a column D where it is washed and dried with sulphuric acid, and concentrated acid is recovered in a cooler E. Some of the sulphuric acid vapour passes into a column A, and concentrated acid falls back into the boiler C, and thence to a cooler K.

Latest Notifications.

279,377. Catalysts for synthetic methanol production. Commercial Solvents Corporation. October 25, 1926.

279,378. Catalysts for synthetic methanol production. Commercial Solvents Corporation. October 25, 1926.

279,379. Manufacture of new ortho- chloro- para-amino-glycineamide phenylarsinic acid and a new intermediate product. Etablissements Poulenc Frères and Fourneau, E. October 21, 1926.

279,401. Manufacture of dyestuffs of the anthracene series. I. G. Farbenindustrie Akt.-Ges. October 21, 1926.

279,410. Process for hydrogenating and splitting hydrocarbons, the distillation products of various coals and their constituents, as also the coals themselves. Spilker, Dr. A. L. H., Zerbe, Dr. C., and Ges. für Teerverwertung. October 20, 1926.

279,419 and 279,420. Process for the production of metal cyanamides or mixtures containing the same. Caro, Dr. N., and Frank, Dr. A. R. October 23, 1926.

279,421. Process for producing an alkaline-reacting nitrogen fertiliser. Caro, Dr. N., and Frank, Dr. A. R. October 23, 1926.

279,429. Manufacture and production of azo-dyestuffs and their chromium compounds. I. G. Farbenindustrie Akt.-Ges. October 22, 1926.

279,436. Manufacture of an intermediate product for making dyestuffs. I. G. Farbenindustrie Akt.-Ges. October 23, 1926.

279,437. Process for desulphurising viscose silk. I. G. Farbenindustrie Akt. Ges. October 23, 1926.

279,443. Manufacture of solutions of gelatin in organic solvents. I. G. Farbenindustrie Akt.-Ges. October 20, 1926.
279,445. Manufacture of physiologically active extracts. I. G. Farbenindustrie Akt.-Ges. October 20, 1926.
279,479. Manufacture of vat-dyestuffs. Soc. of Chemical Industry in Basle. October 20, 1926.
279,488. Process of obtaining light hydrocarbides from complex organic compounds by simultaneous action of heat, hydrogen under pressure, and dehydrating catalysts. Florentin, D., Kling, A., and Matignon, C. October 23, 1926.
279,489. Manufacture of vat-dyestuffs. I. G. Farbenindustrie Akt.-Ges. October 23, 1926.
279,506. Manufacture of diacidyl-derivatives of the naphthalene and acenaphthalene series. I. G. Farbenindustrie Akt.-Ges. October 23, 1926.
279,520. Pyroxylin compositions. Du Pont de Nemours and Co., E. I. October 25, 1926.

Specifications Accepted with Date of Application

255,092. Recovering tin from tin plated materials. J. Jacobsen, J. Goffin, L. Goffin, and L. Renson. July 9, 1925.
255,468. Organic amido- or imido-compounds, Production of derivatives of. S. G. S. Dicker. (*Verein fur Chemische Industrie Akt.-Ges.*) July 14, 1926.
255,475. Chlorinating ores, Process for. A. Ramen. July 15, 1925.
262,141. Thiazole derivatives of 1 : 4-naphthoquinone, Manufacture of. I.G. Farbenindustrie Akt.-Ges. November 28, 1925.
262,802. Cyanides, Manufacture of. Naamlooze Vennootschap Nederlandsche Mijnbouwen Handelmaatschappij. December 10, 1925.
264,834. Ores and the like, Process for reducing. W. Buddeus. January 20, 1926.
268,385. Purification of impure solutions of caustic soda and the like on osmotic principles, Apparatus for. L. Cerini. March 26, 1926. Addition to 265,126.
268,779. Sulphate of barium and sulphate of calcium, Process for manufacturing pure white and finely distributed. T. Lichtenberger and L. Kaiser. April 3, 1926.
270,283. Chlorthymol (1-methyl-3-oxy-4-isopropyl-6-chlor-benzene), Process for the manufacture of. F. Raschig. April 29, 1926.
270,626. Hydrocarbon oils containing sulphur, Process of purifying. Standard Development Co., May 8, 1926.
265,127. Evaporating or concentrating aqueous solutions, such as sugar solution. Berten and Co., Ges. February 1, 1926.
270,644. Accelerating vulcanisation, Process for. Silesia Verein Chemischer Fabriken. May 4, 1926.
272,232. 1 : 3-dioxy-4-carboxy-6-phenyl-alkyl-benzene, Process for the manufacture of. F. Hoffmann-La Roche and Co. Akt.-Ges. June 4, 1926.
275,158. Concentrated acetic acid and other products originating in the carbonisation of wood, Process for the recovery of. H. Suida. July 31, 1926.
278,771 and 279,003. Vat dyestuffs of the anthraquinone series, Manufacture of. W. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) May 12, 1926.
278,777. Valuable organic compounds, Manufacture and production of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) June 10, 1926.
278,789. 4-hydroxy-3-acetaminoaryl-1-arsinic acids, Process for the manufacture of. W. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) July 7, 1926.
278,791. Composite titanium pigments, Mannfacture of. C. A. Klein and R. S. Brown. July 8, 1926.
278,815. Distillation of solvents in connection with the extraction of oils, fats, waxes, and the like, Apparatus for. L. J. Simon and Simon Bros. (Engineers), Ltd. July 19, 1926.
278,834. Dyes and Dyeing. R. F. Thomson, J. Thomas, and Scottish Dyes, Ltd. August 4th, 1926.
278,851. Purification of zinc solutions preparatory to recovery of zinc by electrolysis. Rhodesia Broken Hill Development Co., Ltd. (*R. H. Stevens, G. C. Norris, and W. N. Watson.*) September 1, 1926.
278,890. Stable preparations of vat dyestuffs, Process for producing. I.G. Farbenindustrie Akt.-Ges., K. F. Maennchen, and F. Hummerich. October 21, 1926. Addition to 259,999.

Applications for Patents

Aluminium-Industrie Akt.-Ges. Electrolytic extraction of aluminium. 28,392. October 25. (Germany, November 22, 1926.)
Anglo-Persian Oil Co., Ltd. Liquid fuels for internal-combustion engines. 28,897. October 29.
Annicq, J. Continuously scalding and dyeing cotton. 28,534. October 27.
Baddiley, J., Brightman, R., British Dyestuffs Corporation, Ltd., and Chorley, P. Disazo dyes. 28,495. October 26. (September 8, 1926.)
Bakelite Corporation. Phenol resin compositions. 28,629. October 27. (United States, November 10, 1926.)
Bakelite Corporation. Phenol resin, and process of making same. 28,630. October 27. (United States, November 11, 1926.)
Carpmael, A., and I. G. Farbenindustrie Akt.-Ges. Manufacture of piece-dyed tissues. 28,385. October 25.
Carpmael, A., and I. G. Farbenindustrie Akt.-Ges. Manufacture of 1. 8-naphthoxypenthiophen compounds. 28,386. October 25.
Carpmael, A., and I. G. Farbenindustrie Akt.-Ges. Manufacture of new derivatives of anthanthrone. 28,387. October 25.
Carpmael, A., and I. G. Farbenindustrie Akt.-Ges. Manufacture of anthraquinone dyestuffs. 28,516. October 26.
Chemische Fabrik auf Actien vorm. E. Schering. Manufacture of alkylisopropylphenols, etc. 28,388. October 25. (Germany, October 26, 1926.)
Chemische Fabrik auf Actien vorm. E. Schering. Manufacture of condensation products from creosols and ketones. 28,389. October 25. (Germany, October 26, 1926.)
Chemische Fabrik auf Actien vorm. E. Schering. Manufacture of decomposition compounds from condensation products of creosol, etc. 28,390. October 25. (Germany, October 26, 1926.)
Chemische Fabrik auf Actien vorm E. Schering. Manufacture of higher alkylated guanidine derivatives. 28,674. October 27. (Germany, October 28, 1926.)
Chemische Fabrik auf Actien vorm. E. Schering and Jordan, H. Manufacture of condensation product from M-cresol and acetones. 28,803. October 28.
Du Pont de Nemours and Co., E. I. Proxylin compositions. 28,360. October 25. (United States, October 25, 1926.)
Ellis, G. B., and Chemical Works, formerly Sandoz. Dyeing effect threads. 28,636. October 27.
Garland, C. S. Edge filtration. 28,736. October 28.
Holzverkohlungs Industrie Akt.-Ges. Production of acetone. 28,220. October 24. (Germany, November 4, 1926.)
I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of esters of silicic acid. 28,210. October 24.
I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Condensation of phthalic anhydride, etc. 28,211. October 24.
I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of condensation products of phthalic anhydride, etc. 28,212. October 24.
I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of green hydrated chromium oxide. 28,213. October 24.
I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of azo dyestuffs. 28,214. October 24.
I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of coloured compositions from cellulose esters, etc. 28,475. October 26.
I. G. Farbenindustrie Akt.-Ges. and Imray, O. Y. Manufacture of dyestuffs. 28,757. 25,758. 28,759. October 28.
I. G. Farbenindustrie Akt.-Ges. and Imray, O. Y. Manufacture of nitrosamine printing colours. 28,760. October 28.
I. G. Farbenindustrie Akt.-Ges. Process of improving perfumes. 28,876. October 29.
I. G. Farbenindustrie Akt.-Ges. Extraction of carbon dioxide from gaseous mixtures. 28,209. October 24.
I. G. Farbenindustrie Akt.-Ges. Manufacture of diacidyl-derivatives of the naphthalene, etc., series. 28,225. October 24. (Germany, October 23, 1926.)
I. G. Farbenindustrie Akt.-Ges. Production of cellulose acetate solutions, etc. 28,444. October 26. (April 26, 1926.)
I. G. Farbenindustrie Akt.-Ges. Manufacture of hardened casein products. 28,480. October 26. (Germany, October 26, 1926.)
I. G. Farbenindustrie Akt.-Ges. Printing with vat dyestuffs. 28,481. October 26. (Germany, October 26, 1926.)
I. G. Farbenindustrie Akt.-Ges. Manufacture of stable solid solutions of salts of aromatic sulphonic acids. 28,616. October 27. (Germany, October 27, 1926.)
I. G. Farbenindustrie Akt.-Ges. Manufacture of organic compounds containing oxygen. 28,747. October 28. (Germany, November 15, 1926.)
I. G. Farbenindustrie Akt.-Ges. Recovering acetylene from gaseous mixtures. 28,748. October 28. (Germany, November 16, 1926.)
I. G. Farbenindustrie Akt.-Ges. Manufacture of vat dyestuffs. 28,749. October 28. (Germany, November 18, 1926.)
I. G. Farbenindustrie Akt.-Ges. Spinning artificial silk. 28,761. October 28. (Germany, October 30, 1926.)
I. G. Farbenindustrie Akt.-Ges. Production of artificial masses. 28,848. October 29. (Germany, December 23, 1926.)
Imperial Chemical Industries, Ltd. Carburettors. 28,589. October 27.
Metallbank und Metallurgische Ges. Akt.-Ges. Production of alumina. 28,519. October 26. (Switzerland, October 26, 1926.)
Pauling, H. Combustion of ammonia. 28,250. October 24. (Germany, October 22, 1926.)
Synthetic Ammonia and Nitrates, Ltd. Heat-exchangers. 28,595. October 27.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £34 per ton; powder, £36 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 6os. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages extra.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 2s. 5d. to 2s. 10d. per gall.; pyridinised industrial, 2s. 7d. to 3s. per gall.; mineralised, 3s. 6d. to 3s. 10d. per gall.; 64 O.P., 1d. extra in all cases; prices according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3¾d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—7½d. to 8d. per lb. Crude 60's, 2s. 3d. to 2s. 5d. per gall.

ACID CRESYLIC 99/100.—2s. 11d. to 3s. per gall. 97/99.—2s. 4½d. to 2s. 5½d. per gall. Pale, 95%, 2s. 3d. to 2s. 4d. per gall. Dark, 95%, 2s. 1d. to 2s. 2d.

ANTHRACENE.—A quality, 2½d. per unit. 40%, £5 per ton.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7¾d. to 8d. per gall.

BENZOLE.—Crude 65's, 9¼d. to 10d. per gall., ex works in tank wagons. Standard Motor, 1s. 1½d. to 1s. 2½d. per gall., ex works in tank wagons. Pure, 1s. 5d. to 1s. 7d. per gall., ex works in tank wagons.

TOLUOLE.—90%, 1s. 4d. to 1s. 8d. per gall. Firm. Pure, 1s. 6d. to 2s. per gall.

XYLOL.—1s. 3d. to 1s. 10d. per gall. Pure, 1s. 9d. per gall.

CREOSOTE.—Cresylic, 20/24%, 10d. to 11d. per gall.; middle oil, 8d. to 9d. per gall. Heavy, 8¾d. to 9d. per gall. Standard specification, 7½d. to 7¾d. ex works. Salty, 7d. per gall. less 1½%.

NAPHTHA.—Crude, 9d. to 10d. per gall. Solvent 90/160, 9½d. to 10½d. per gall. Solvent 95/160, 1s. 3d. to 1s. 4d. per gall. Solvent 90/190, 8½d. to 1s. 3d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £5 per ton. Whizzed or hot pressed, £8 per ton.

NAPHTHALENE.—Crystals, £11 10s. to £13 10s. per ton. Quiet. Flaked, £12 10s. to £13 per ton, according to districts.

PITCH.—Medium soft, 84s. to 87s. 6d. per ton, f.o.b., according to district. Market firm.

PYRIDINE.—90/140, 5s. 9d. to 6s. 6d. per gall. 90/180, 4s. 6d. to 5s. per gall. Heavy, 4s. to 4s. 6d. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—4s. 6d. per lb.

ACID H.—3s. per lb.

ACID NAPHTHIONIC.—1s. 6d. per lb.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb.

ACID SULPHANILIC.—8½d. per lb.

ANILINE OIL.—8d. per lb. naked at works.

ANILINE SALTS.—8d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—5½d. per lb.

m-CRESOL 98/100%.—2s. 7½d. per lb. Only limited inquiry.

p-CRESOL 32/34° C.—2s. 8½d. per lb. Only limited inquiry.

DICHLORANILINE.—1s. 10d. per lb.

DIMETHYLANILINE.—1s. 11d. per lb.

DINITROBENZENE.—8½d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—10d. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb.

B-NAPHTHYLAMINE.—3s. per lb.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 7d. to 1s. 8d. per lb.

NITROBENZENE.—6d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb.

R. SALT.—2s. 2d. per lb.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—7½d. to 8½d. per lb.

p-TOLUIDINE.—2s. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

N. W. Acid.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 10s. to £10 per ton. Good demand. Grey, £14 10s. to £15 per ton. Liquor, 9d. per gall.

CHARCOAL.—£6 to £9 per ton, according to grade and locality. Foreign competition severe.

IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 10d. per gall.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 11d. to 4s. 3d. per gall. Solvent, 4s. 3d. per gall.

WOOD TAR.—£4 to £5 per ton.

BROWN SUGAR OF LEAD.—£40 15s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 6d. to 2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5½d. to 6½d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.

ZINC SULPHIDE.—1s. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 3½d. to 2s. 5d. per lb.

ACID, BENZOIC B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. to 1s. 3d. per oz., according to quantity.

ACID, BORIC B.P.—Crystal, 40s. to 43s. per cwt.; powder, 44s. to 47s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. 6¾d. to 1s. 7½d. per lb., less 5%.
ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.
ACID, SALICYLIC, B.P. PULV.—1s. 2½d. to 1s. 4d. per lb.; Technical.—11½d. to 1s. per lb. Good demand.
ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—1s. 3¼d. per lb., less 5%.
AMIDOL.—9s. per lb., d/d.
ACETANILIDE.—1s. 6d. to 1s. 8d. per lb. for quantities.
AMIDOPYRIN.—8s 6d. per lb.
AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity.
AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated: 1s. per lb.
ATROPINE SULPHATE.—9s. 6d. per oz.
BARBITONE.—5s. 9d. to 6s. per lb.
BENZONAPHTHOL.—3s. 3d. per lb. spot.
BISMUTH CARBONATE.—9s. 9d. to 9s. 10d. per lb.
BISMUTH CITRATE.—9s. 6d. to 9s. 9d. per lb.
BISMUTH SALICYLATE.—8s. 9d. to 9s. per lb.
BISMUTH SUBNITRATE.—7s. 9d. to 8s. per lb.
BISMUTH NITRATE.—5s. 9d. to 6s. per lb.
BISMUTH OXIDE.—13s. 9d. to 14s. per lb.
BISMUTH SUBCHLORIDE.—11s. 9d. to 12s. per lb.
BISMUTH SUBGALLATE.—7s. 9d. to 8s. per lb. Extra and reduced prices for smaller and larger quantities respectively; Liquor Bismuthi B.P. in W. Qts. 1s. 1d. per lb.; 12 W. Qts. 1s. per lb.; 36 W. Qts. 11½d. per lb.
BORAX B.P.—Crystal, 24s. to 27s. per cwt.; powder, 26s. to 29s. per cwt. according to quantity. Carriage paid any station in Great Britain, in ton lots.
BROMIDES.—Potassium, 1s. 9½d. to 1s. 10½d. per lb.; sodium, 2s. to 2s. 1d. per lb.; ammonium, 2s. 3d. to 2s. 4d. per lb.; granulated, ½d. per lb. less; all spot. Large quantities at lower rates.
CALCIUM LACTATE.—1s. 2d. to 1s. 3½d. per lb.
CAMPHOR.—Refined flowers, 2s. 11d. to 3s. 1d. per lb., according to quantity; also special contract prices.
CHLORAL HYDRATE.—3s. 2d. to 3s. 4d. per lb.
CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.
CREOSOTE CARBONATE.—6s. per lb.
ETHERS.—S.G. ·730—1s. 1½d. to 10½d., drums; other gravities at proportionate prices.
FORMALDEHYDE.—£39 per ton, in barrels ex wharf.
GUAIACOL CARBONATE.—4s. 9d. to 5s. per lb.
HEXAMINE.—2s. 3d. to 2s. 6d. per lb.
HOMATROPINE HYDROBROMIDE.—30s. per oz.
HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gal. B.P., 10 vols., 2s. 3d. per gal. In carboys. Winchesters, 2s. 11d. to 3s. 9d. per gal.; 20 vols., 4s. 3d. per gal.; Winchesters, 5s. per gal. Special prices for larger quantities.
HYDROQUINONE.—2s. 11d. to 3s. 2d. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
IRON AMMONIUM CITRATE.—B.P., 2s. 1d. to 2s. 4d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 2d. to 2s. 5d. per lb.
IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.
MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy Commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.
MENTHOL.—A.B.R. recrystallised B.P., 17s. 9d. per lb. net; Synthetic detached crystals, 8s. 6d. to 12s. 6d. per lb., according to quantity; Liquid (95%), 11s. 3d. per lb.
MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d, per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10d. to 5s. 11d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 9d. per lb.
METHYL SULPHONAL.—8s. 9d. to 9s. per lb.
METOL.—11s. per lb. British make.
PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.
PARALDEHYDE.—1s. 4d. per lb.
PHENACETIN.—2s. 6d. to 2s. 9d. per lb.
PHENAZONE.—4s. to 4s. 3d. per lb.
PHENOLPHTHALEIN.—6s. 6d. to 6s. 9d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—98s. per cwt. less 2½%.
POTASSIUM CITRATE.—B.P.C., 1911; 1s. 8d. to 1s. 11d. per lb.; U.S.P.; 1s. 11d. to 2s. 2d. per lb.
POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.
POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb. according to quantity.
POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 6d. per lb., spot.
QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz. bulk in 100 oz. tins.
RESORCIN.—3s. 9d. to 4s. per lb., spot.
SACCHARIN.—55s. per lb.; in quantity lower.
SALOL.—2s. 4d. per lb.
SODIUM BENZOATE, B.P.—1s. 8d. to 1s. 11d. per lb.
SODIUM CITRATE, B.P.C., 1911.—1s. 8d, to 1s. 11d. per lb., B.P.C., 1923—1s. 11d. to 2s. 1d. per lb. for 1-cwt. lots. U.S.P., 1s. 11d. to 2s. 2d. per lb., according to quantity.
SODIUM FERROCYANIDE.—4d. per lb., carriage paid.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—90s. to 95s. per cwt. Crystals, 5s. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 7½d. to 1s. 9d. per lb. Crystal, 1s. 8½d. to 1s. 10d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.
SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K.
SULPHONAL.—6s. 9d. to 7s. per lb.
TARTAR EMETIC, B.P.—Crystal or powder, 2s. to 2s. 1d. per lb.
THYMOL.—Puriss., 10s. to 10s. 3d. per lb., according to quantity. Firmer. Natural, 14s. 3d. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb.
AUBEPINE (EX ANETHOL).—11s. per lb.
AMYL ACETATE.—2s. per lb.
AMYL BUTYRATE.—5s. 3d. per lb.
AMYL SALICYLATE.—3s. per lb.
ANETHOL (M.P. 21/22° C.).—5s. 6d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s.
BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL BENZOATE.—2s. 6d. per lb.
CINNAMIC ALDEHYDE NATURAL.—16s. 6d. per lb.
COUMARIN.—10s. per lb.
CITRONELLOL.—13s. 9d. per lb.
CITRAL.—8s. 3d. per lb.
ETHYL CINNAMATE.—6s. per lb.
ETHYL PHTHALATE.—3s. per lb.
EUGENOL.—8s. 6d. per lb.
GERANIOL (PALMAROSA).—18s. 6d. per lb.
GERANIOL.—6s. 6d. to 10s. per lb.
HELIOTROPINE.—4s. 9d. per lb.
ISO EUGENOL.—13s. 6d. per lb.
LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb.
LINALYL ACETATE.—Ex Bois de Rose, 18s. 6d. per lb. Ex Shui Oil, 14s. 6d. per lb.
METHYL ANTHRANILATE.—8s. 6d. per lb.
METHYL BENZOATE.—4s. per lb.
MUSK KETONE.—35s. per lb.
MUSK XYLOL.—8s. per lb.
NEROLIN.—4s. 6d. per lb.
PHENYL ETHYL ACETATE.—12s. per lb.
PHENYL ETHYL ALCOHOL.—10s. 6d. per lb.
RHODINOL.—32s. 6d. per lb.
SAFROL.—1s. 6d. per lb.
TERPINEOL.—1s. 8d. per lb.
VANILLIN.—16s. 6d. per lb.

Essential Oils

ALMOND OIL.—Foreign S.P.A., 11s. per lb.
ANISE OIL.—2s. 9d. per lb.
BERGAMOT OIL.—26s. per lb.
BOURBON GERANIUM OIL.—13s. 6d. per lb.
CAMPHOR OIL.—75s. per cwt.
CANANGA OIL, JAVA.—15s. 9d. per lb.
CINNAMON OIL LEAF.—6d. per oz.
CASSIA OIL, 80/85%.—7s. 3d. per lb.
CITRONELLA OIL.—Java, 1s. 10d. per lb., c.i.f. U.K. port for shipment over 1928. Ceylon, pure, 1s. 8d. per lb.
CLOVE OIL.—5s. per lb.
EUCALYPTUS OIL, AUSTRALIAN.—2s. 2d. per lb.
LAVENDER OIL.—Mont Blanc, 38/40%, Esters, 17s. per lb.
LEMON OIL.—7s. 3d. per lb.
LEMONGRASS OIL.—4s. 6d. per lb.
ORANGE OIL, SWEET.—11s. 3d. per lb.
OTTO OF ROSE OIL.—Anatolian, 35s. per oz. Bulgarian, 75s. per oz.
PALMA ROSA OIL.—10s. per lb.
PEPPERMINT OIL.—Wayne County, 15s. 9d. per lb.; Japanese, 8s. per lb.
PETITGRAIN OIL.—8s. 6d. per lb.
SANDALWOOD OIL.—Mysore, 26s. 6d. per lb.; 90/95%, 16s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

London, *November* 3, 1927.

DURING the last week the steady improvement in trade has continued and the forward outlook is much better. Prices, generally, are unchanged. Export trade also remains good, and there is a good volume of inquiry.

General Chemicals

ACETIC ACID is in good demand at £37 to £38 per ton for 80% grades.

ACETONE is firm at £63 per ton with advantage for larger quantities.

ACID FORMIC has been in increased demand; price is improving for stock parcels.

ACID LACTIC.—Unchanged.

ACID OXALIC is very firm with greatly increased demand, at £30 per ton.

ALUMINA SULPHATE.—The demand is maintained and price is firm at about £5 10s. per ton, for 17/18%.

AMMONIUM CHLORIDE.—Unchanged at £19 per ton.

BARIUM CHLORIDE.—The demand remains good at £8 10s. to £9 per on.

COPPER SULPHATE.—Unchanged.

EPSOM SALTS are still in good demand at £4 7s. 6d. per ton.

FORMALDEHYDE.—Demand remains active and price is £40 to £41 per ton.

LEAD ACETATE.—Unchanged at £42 10s. for white, with brown at £1 per ton less.

LEAD NITRATE.—Unchanged.

LIME ACETATE.—Unchanged.

METHYL ACETONE is a little more active at £54 to £55 per ton.

POTASSIUM CHLORATE remains firm and in short supply.

POTASSIUM PERMANGANATE.—The demand remains small at 6¼d. to 6½d. per lb. for B.P.

POTASSIUM PRUSSIATE remains in fair demand.

SODA ACETATE is in exceedingly short supply. Prices are rising, and are about £19 10s. to £20 per ton.

SODA BICHROMATE.—The demand is still good at 3¼d. per lb.

SODA CHLORATE.—The position is firmer and supplies are becoming short. Price has advanced to £26 per ton.

SODA NITRITE is still in good demand at £19 10s. per ton.

SODA PRUSSIATE remains firm at 4½d. per lb.

SODA SULPHIDE.—Unchanged.

ZINC SULPHATE.—Unchanged.

Coal Tar Products

The market for coal tar products remains quiet, and there is little change in values to report from last week.

90's BENZOL remains unchanged at about 1s. 4d. to 1s. 5d. per gallon, on rails, while the motor quality is quoted at 1s. 1½d. to 1s. 2½d. per gallon.

PURE BENZOL is quoted at 1s. 7½d. to 1s. 8½d. per gallon, on rails.

CREOSOTE OIL is firm, and is quoted at about 7½d. per gallon, on rails in the North, while the price in London is about 8½d. per gallon.

CRESYLIC ACID is unchanged, at about 2s. 2d. per gallon, ex works, for the pale quality, 97/99%, while the dark quality is worth about 1s. 11d. per gallon.

SOLVENT NAPHTHA is quoted at about 10d. per gallon, on rails.

HEAVY NAPHTHA is unchanged, being worth about 11d. per gallon, on rails.

NAPHTHALENES are steady at about £6 15s. to £7 per ton for the 74/76 quality, and at about £8 to £8 15s. per ton for the 76/78 quality.

PITCH is unchanged and quietly steady at about 85s. per ton, f.o.b. U.K. ports.

Latest Oil Prices

LONDON, November 2.—LINSEED OIL quiet and 5s. to 2s. 6d. per ton lower; spot, ex mill, £30; November, £29; November-December, £29 5s.; January-April, £29 12s. 6d.; and May-August, £30. RAPE OIL firm. Crude, extracted, £44 10s.; technical, refined, £46 10s. COTTON OIL firm and a further 5s. to 10s. per ton higher; refined common edible, £43; Egyptian, crude, £36 15s.; and deodorised, £45. TURPENTINE quiet, 1s. to 9d. per cwt. lower; American, spot, 36s., taken and sellers; December, 36s. 9d.; January-April, 38s. 3d.

HULL, November 2.—LINSEED OIL.—Spot to April, £30 2s. 6d. May-August, £30 7s. 6d. per ton, naked. COTTON OIL.—Bombay crude, £33 10s.; Egyptian crude, £36 15s.; edible refined, £39 15s.; technical, £37 5s.; deodorised, £41 15s. per ton, naked. PALM KERNEL OIL.—Crushed, 5½ per cent., £39 5s. per ton, naked. GROUNDNUT OIL.—Crushed/extracted, £45; deodorised, £49. SOYA OIL.—Extracted and crushed, £35 15s.; deodorised, £39 5s. RAPE OIL.—Crude/extracted, £43; refined, £45 per ton, net cash terms, ex mill. CASTOR OIL and COD OIL.—Unchanged.

South Wales By-Products

THE South Wales by-product market remains unchanged. Tars are quiet, crude tar ranging from 60s. to 65s. per ton. There is very little demand for refined tars, but prices are unchanged with coke oven tar at 8¼d. to 9d. a gallon, and gasworks tar at 7d. to 7¼d. a gallon f.o.r. maker's works, and 10d. to 1s. delivered in barrels. Heavy and solvent naphtha has little demand at 9d. to 10d. a gallon f.o.r. maker's works, while pitch is slow and unchanged. Crude naphthalene remains at £4 10s. to £5 per ton. Patent fuel and coke exports continue good, and there has been a slight increase in the home demand. Patent fuel export prices remain at 22s. 6d. to 24s. 3d., and coke 27s. 6d. to 36s. 6d.

Proposed Finnish Nitrate Works

A FINNISH State committee of investigation has advised that the Government inquire into the possibility of the establishment of a nitrogen industry by private home or foreign interests, power being obtained from Imatra. Alternatively a State industry may be started at Imatra, and the committee suggests that in this event the 1928 Budget should provide a building grant of 34 million Finmarks, and the 1929 Budget a grant of about 30 million Finmarks for establishment charges.

Nitrogen Products

Export.—During the last week the sulphate of ammonia market has been quieter but prices remain unchanged at about £9 10s. per ton, f.o.b. U.K. port in single bags, for prompt shipment. It is understood that the increased production on the Continent is finding outlet for the most part in Continental markets. The Far East continues to import substantial quantities.

Home.—The home trade continues quiet with a few inquiries from certain parts of the country. The Irish demand continues good. The price scale announced at the end of July continues to operate and there seems little likelihood of any change.

Nitrate of Soda.—The market is quieter. The heavy purchases of the last few weeks have left the Chilean producers only small quantities to sell for near positions. It seems likely, therefore, that if any demand sets in the price for prompt shipment will go higher. The result of the greatly increased demand has been the reopening of several oficinas and it is expected that early next year the monthly production will reach 250,000 tons. The great improvement in the nitrate position is one of the features of the fertiliser year.

Discussion on the Hydrogenation of Oils

AT a meeting of the London section of the Society of Chemical Industry on Monday, November 7, there will be a discussion on "Recent Advances in the Hydrogenation of Oils." There will be a general introduction by Mr. E. R. Bolton, followed by papers on "Selective Hydrogenation" and "Melting Point of Hydrogenated Oils," by K. A. Williams; on "Hydrogenation of Fatty Acids and Neutral Oils," by R. G. Pelley; and on "The Activity of a Nickel Catalyst," by E. J. Lush.

I.G. Activities

THE holding company of the interests of the I.G. Farbenindustrie in the Bergius coal liquefaction process has issued a balance sheet for 1926, disclosing a net profit of 72,140 marks, which are carried forward. The I.G. has now taken over the sales of some of the preparations of the Rhenania-Kunheim A.G. Shares of the Rhenania-Kunheim to the amount of 1,600,000 marks were sold by the Rutgers Works a few months ago, but the new ownership has never been disclosed.

THE TOTAL VALUE OF IMPORTS OF CHEMICALS, DRUGS, DYES and colours into Malaya during the first half of this year was £2,371,106, as compared with £1,014,758 during the corresponding period of 1926.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.*

GLASGOW, *November 2, 1927.*

BUSINESS in the heavy chemical market still remains fairly good, with little or no change in prices during the past week.

Industrial Chemicals

ACETONE B.G.S.—Quoted £58 to £61 per ton, ex store, according to quantity.

ACID ACETIC, 98/100%.—Glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80%, technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystals, granulated or small flakes, £34 per ton; powder, £36 per ton, in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Quoted at 7¾d. per lb., f.o.b. U.K. ports.

ACID CITRIC, B.P. CRYSTALS.—Offered at 1s. 6½d. per lb., less 5% ex wharf.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. 9d. per carboy. Dearsenicated quality, 6s. 3d. per carboy, ex works.

ACID NITRIC, 80%.—Quoted £23 5s. per ton, ex station, full truck loads.

ACID OXALIC.—Continental material unchanged at 3⅞d. per lb., ex wharf. Spot material quoted 3¾d. per lb., ex store.

ACID SULPHURIC, 144°.—Quoted £3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—In little demand and price nominally at 1s. 2½d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Spot material quoted £5 12s. 6d. per ton, ex store. On offer for early delivery at £5 5s. per ton, c.i.f. U.K. ports.

ALUM POTASH.—Lump quality quoted £8 5s. per ton, c.i.f. U.K. ports. Crystal meal, 10s. per ton less. Lump quality on spot offered at £9 per ton, ex store.

AMMONIA, ANHYDROUS.—Unchanged at about 9d. per lb., carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture unchanged at £23 to £24 per ton, ex station. Continental on offer at £19 15s. per ton, c.i.f. U.K. ports. Fine white crystals quoted £17 10s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Rather easier now quoted £20 per ton, ex wharf. Prompt despatch from mines. Spot material available at £20 15s. per ton, ex store.

BARIUM CARBONATE, 98/100%.—Continental material unchanged at about £7 10s. per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Large white crystals quoted £6 17s. 6d. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—Contract price to consumers, £8 per ton, ex station, minimum four-ton lots. Spot material 10s. per ton extra. Continental on offer at £7 5s. per ton, ex wharf.

BORAX.—Granulated, £19 10s. per ton; crystals, £20 per ton; powder, £21 per ton, carriage paid U.K. ports.

CALCIUM CHLORIDE.—English manufacturers' price unchanged at £5 to £5 5s. per ton, ex station, with a slight reduction for contracts. Continental offered at £3 15s. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works, or £4 2s. 6d. per ton, f.o.b. U.K. ports, for export.

COPPER SULPHATE.—Continental material on offer at £22 10s. per ton, ex wharf. British material quoted £23 5s. per ton, ex store, spot delivery.

FORMALDEHYDE, 40%.—On offer at £37 5s. per ton, c.i.f. U.K. ports. Spot material quoted £39 per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material on offer at about £28 per ton, ex store.

LEAD, WHITE.—Quoted £28 10s. per ton, ex store.

LEAD ACETATE.—White crystals quoted £39 15s. per ton, c.i.f. U.K. ports; brown, about £38 10s. per ton, c.i.f. U.K. ports; spot material on offer at £42 15s. per ton, ex store, spot delivery.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

POTASH CAUSTIC.—88/92% solid quality, quoted £28 15s. per ton, c.i.f. U.K. ports, minimum 15-ton lots. Under 15-ton lots, £29 10s. per ton. Liquid, £15 per ton, minimum 15-ton lots. Under 15-ton lots, £15 7s. 6d. per ton, c.i.f. U.K. ports.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.

POTASSIUM CARBONATE.—95/98% quality now on offer at £25 10s. per ton, ex wharf. Spot material quoted £26 10s. per ton, ex store; 90/92% quality offered from the Continent at £24 per ton, ex wharf.

POTASSIUM CHLORATE, 99/100%.—On offer from the Continent at £25 10s. per ton, c.i.f. U.K. ports for powder quality; crystals, 30s. per ton extra.

POTASSIUM NITRATE.—Quoted £20 per ton, c.i.f. U.K. ports. Spot material available at £21 per ton, ex store.

POTASSIUM PERMANGATE, B.P. CRYSTALS.—Quoted 6½d. per lb., ex store, spot delivery.

POTASSIUM PRUSSIATE (YELLOW).—Unchanged at about 6½d. per lb., ex store, spot delivery. Offered from the Continent at 6⅜d. per lb., ex wharf.

SODA CAUSTIC POWDERED, 98/99%.—£19 7s. 6d. per ton; 76/77%, £15 10s. per ton; 70/77%, £14 10s. per ton, carriage paid station, minimum 4-ton lots on contract. Spot material, 10s. per ton extra.

SODIUM ACETATE.—On offer from the Continent at £18 per ton, c.i.f. U.K. ports. British material quoted £21 5s. per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3¾d. per lb., delivered buyers' works.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powdered or pea quality, 27s. 6d. per ton extra; alkali, 58%, £8 10s. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 10s. per ton, ex store, minimum 4-ton lots. Continental on offer at about £8 2s. 6d. per ton, ex wharf, prompt shipment. Pea crystals of British manufacture quoted £15 5s. per ton, ex station, 4-ton lots.

SODIUM NITRITE, 100%.—Quoted £19 10s. per ton, ex store.

SODIUM PRUSSIATE (YELLOW).—In moderate demand, and price unchanged at about 4¼d. per lb., ex store. Offered for prompt shipment from the Continent at 4⅛d. per lb., ex wharf.

SODIUM SULPHATE (SALTCAKE).—Price for home consumption, £3 7s. 6d. per ton, ex works.

SODIUM SULPHIDE.—Prices for English material as follows:—60/62%, solid, £10 10s. per ton; broken, £11 10s. per ton; flake, £13 5s. per ton; crystals, 31/34%, £7 10s. per ton to £8 5s. per ton, according to quality, delivered your works, minimum 4-ton lots on contract. Prices for spot delivery, 5s. per ton higher for solid, 2s. 6d. per ton. For crystals offered from the Continent at about £9 5s. per ton, c.i.f. U.K. ports; broken, 15s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 15s. per ton; rock, £12 12s. 6d. per ton; floristella, £9 10s. per ton; ground American, £9 5s. per ton; ex store. Prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b., U.K. ports; 98/100%, solid, on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports. Powdered, 20s. per ton extra.

ZINC SULPHATE.—Continental material quoted £11 15s. per ton, ex wharf.

NOTE.—The above prices are for bulk business and not to be taken as applicable to small parcels.

Intermediates

ORTHO TOLUIDINE.—8d. per lb. Some inquiries.

H. ACID.—3s. per lb. Some inquiries.

BETA NAPHTHOL.—10d. per lb. Some inquiries.

PARANITRANILINE.—1s. 7½d. per lb. Some inquiries.

BETA NAPHTHYLAMINE.—3s. 4d. per lb. Some inquiries.

A Chemical Engineering Amalgamation

THE title of the firm of Marcus Allen and Sons, Ltd., chemical engineers, of Elsinore Road, Old Trafford, Manchester, has been changed, as from October 26, to Muir-Hill (Engineers), Ltd., as the result of an amalgamation with Muir-Hill Service Equipment, Ltd. The company, in a circular letter, states that it is not the intention of the combined company to cease or decrease in any way the manufacture and sale of their large and well-known range of chemical and general engineering specialities; they will, as a direct consequence of the amalgamation, be able to place larger scope, better service, and generally increased manufacturing facilities at the disposal of their clients.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, November 3, 1927.

There continues to be a quietly steady business being done in chemicals on the Manchester market, the demand coming principally from domestic consumers, overseas business from this centre being on a rather limited scale. As is not unusual at this time of the year, when users are considering the fixing up of contracts for delivery over the next twelve months, a growing interest is being taken in forward positions and inquiry is more active.

Heavy Chemicals

For hyposulphite of soda a quiet demand is reported, while values are fairly steady at £16 5s. per ton for the photographic quality, and about £9 7s. 6d. for the commercial. Bicarbonate of soda is well maintained at round £10 10s. per ton and a moderately active business is being put through. There is not a great deal of buying interest at the moment in the case of chlorate of soda, although values at about 2¾d. per lb. have not eased off any further. Sulphide of sodium is steady at £10 10s. per ton for the 60-65 per cent. concentrated solid and about £8 10s. for the commercial material, a moderate trade being reported. Up to £12 15s. per ton is being quoted for phosphate of soda, but current demand for this is rather quiet. For caustic soda, inquiry and actual sales remain fairly brisk and quotations are firm at from £14 10s. to £16 10s. per ton, according to quality. Prussiate of soda is moving off in limited quantities, but offers keep up pretty well at between 4¼d. and 4⅜d. per lb. In the case of saltcake and Glauber salts, the position is about where it has been for some time, the demand being quiet, although prices are fairly steady at £3 7s. 6d. to £3 10s. and £3 5s. per ton. Alkali is selling in fair quantities and values are fully maintained at round £6 15s. per ton. Nitrite of soda is in moderate request, and parcels are still obtainable at about £19 per ton. Bichromate of soda is well held at up to 3⅛d. per lb. and a fair volume of trade has been done.

Offers of solid caustic potash are being made at from £29 10s. to £30 per ton, and the demand is fairly brisk. Carbonate of potash is steady again at £26 5s. per ton, and buying interest is on a moderate scale. Inquiry for yellow prussiate of potash is on the quiet side, with current offers ranging from 6¼d. to 6½d. per lb. Chlorate of potash is steady at about 2¾d. per lb., but the demand has been rather quiet. So far as bichromate of potash is concerned values are steady at up to 4⅜d. per lb. and a fair business is being put through. Permanganate of potash is slow and values are on the easy side at 5d. to 5⅛d. per lb. for the commercial material and round 6¼d. for the B.P. quality.

Although there is still a fair amount of interest being shown in arsenic, prices seem to be a shade less firm than they have been, and round £18 per ton at the mines for white powdered, Cornish makes, is an average quotation to-day. Sulphate of copper keeps steady at round £24 10s. per ton, f.o.b., and inquiry for this material for shipment is on a moderate scale. Acetate of lime is a steady section of the market, with grey quoted at £16 10s. to £16 15s. per ton and brown at £10 10s. Nitrate of lead meets with a quiet demand, with offers still at about £38 per ton. The acetates of lead are slow and easy at £39 per ton for brown, and £40 10s. to £41 for white.

Acids and Tar Products

Citric acid is a steady section of the market, although there is not a great deal of business passing; offers are at about 1s. 6½d. per lb. Tartaric acid is quiet and on the easy side at 1s. 2¾d. to 1s. 3d. per lb. Acetic acid continues to move off in fair quantities at steady prices, 80 per cent. commercial being quoted at £36 10s. to £37 per ton and glacial at about £67. Oxalic acid meets with a moderate demand at 3⅜d. per lb.

There is a fair amount of export business being done in the case of pitch at about £4 5s. per ton, f.o.b. Creosote oil is well maintained at about 7½d. per gallon and a steady trade is passing. Solvent naphtha is slow and easy at round 11d. per gallon. Crude carbolic acid is firm at about 2s. 6½d. per gallon, with crystals quiet and easy at 7½d. to 7⅝d. per lb.

We have received from The Electrical Equipment and Carbon Co., Bank Buildings, New Oxford Street, a copy of "Electro-Graphite for Electrolytic Purposes," a brochure dealing with the method of manufacture and use of graphite electrodes made by Gebrüder Siemens and Co., of Berlin-Lichtenberg.

Institution of Chemical Engineers: Annual Reception

The Institution of Chemical Engineers has been in existence only five years, but in that time it has already attained a high position among our professional and scientific institutions. The great part which chemical engineering is playing and the still greater part it will play in the industrialisation of chemistry has received much important testimony recently, and in no way more than in the distinguished gathering which was present on the occasion of the Institution of Chemical Engineers' annual reception on Wednesday evening in the rooms of the Royal Institute of Oil Painters, New Princes' Galleries. Among those who were received by the president, Sir Alexander Gibb, and Lady Gibb, were Professor H. E. Armstrong, Dr. E. F. Armstrong, Sir Frank Heath, Mr. H. Tizard, F.R.S., Sir Frederic Nathan, Mr. Emile Mond, Sir Gregory Foster (Provost of University College, London), Mr. F. H. Carr, Dr. C. A. Klein, Mr. C. S. Garland, Professor J. W. Hinchley, the mayors of a number of the metropolitan boroughs, and many others. From 8.45 to 10.30 p.m. a programme of music was performed by the Kensington Singers and others, while the exhibition of the Royal Institute of Oil Painters, which was on view, attracted much attention and admiration.

A Prospective Commonwealth Chemical Combine

Sir Lennox Raws, a former president of the Associated Chambers of Commerce, in Australia, has returned to Melbourne after a visit abroad in the course of which he had associations with Imperial Chemical Industries, Ltd. In an interview he stated that it had been decided to form an organisation similar to I.C.I. to amalgamate chemical interests in Australia and New Zealand. He said also that a technical commission was on its way to Australia to investigate possibilities of the use of nitrogen in various forms, and also the development of other industries in which Imperial Chemical Industries, Ltd., was interested. Plans and specifications for a factory to manufacture artificial leather had been completed, and when he left London orders for the machinery were being placed. As much as possible of the plant would be obtained in Australia. Plans were also in hand for the manufacture of duco and similar nitro-cellulose products. In both these enterprises leading American manufacturers were associated with the British companies, and the technical resources of both would be available to the Australian company.

Dr. Armstrong on "Colour, Commerce and Chemistry"

Under the auspices of the Cavendish Society, Dr. E. F. Armstrong lectured in the Great Hall at Leeds University on November 1 on "Colour, Commerce and Chemistry," Professor Rowe presiding.

Dr. Armstrong stressed the influence exercised by colour on human emotions and in human affairs generally. The absorption of light depended on the molecular structure of material. Blue seemed to have been considered as intermediate between grey and black. A very deep blue could not be distinguished from black except under a good light. Quite a number of our modern black dyes were really very dark blues. The modern demand for colour had greatly stimulated industry and commerce. The natural vegetable and mineral colours were supplemented by synthetic dyes. New demands in colour were constantly leading to the creation of new dyes, and dyes, in turn, made new materials go. This demand had opened the door for synthetic drugs and to many other important commercial developments.

Isolation of New Element

A new element, protoactinium, element number 91, has been discovered by German workers at the Kaiser-Wilhelm-Institut für Chemie, Berlin, and is reported on in a letter to *Nature* from Professor A. Grosse. This discovery is of great importance in regard to radioactivity, since this substance is the longest lived member of the uranium-radium radioactive series of elements. About 2 mg. of almost pure oxide of protoactinium has been isolated, and it is hoped that an atomic weight determination will be carried out shortly.

Company News

BEDE METAL AND CHEMICAL CO.—At a special meeting of shareholders on Monday, a resolution was confirmed to write down the 20s. shares to 8s. each.

FULLER'S EARTH UNION.—An interim dividend has been declared at the rate of 5 per cent. per annum, less tax, on the ordinary shares, payable on November 16.

NEUCHATEL ASPHALTE CO.—The board have decided to declare an interim dividend on account of the current year of 6d. per ordinary share, less income tax, payable on November 15.

BRITISH MATCH CORPORATION, LTD.—The directors have resolved that an interim dividend of 2 per cent., less income-tax, on the shares of the corporation be declared, and that the same be paid on November 15.

ONVERWACHT PLATINUM CO.—At the annual meeting of shareholders at Johannesburg, the net profits, for the year ended June 19, were reported to be £90,782, and two dividends amounting to 17½ per cent. were sanctioned.

KIRLEES ARTIFICIAL SILK MANUFACTURING CO.—It is announced that the board have decided to offer 40,000 deferred ordinary shares at a premium of 2s. per share to holders of similar shares in the proportion of one new share to every four now held.

ZINC CORPORATION.—The directors have declared a dividend of 2s. per share on the preference shares, being the last half of the fixed preferential dividend for 1927, also an interim participating dividend of 1s. 6d. per share on both the preference and the ordinary shares, payable on January 3, 1928, less income tax.

JUTE INDUSTRIES, LTD.—The directors announce that, while the improved trading conditions are still maintained, in view of the circumstances of the company, they are not in a position to declare a dividend. The dividend on the 9 per cent. cumulative participating preference shares due on November 11 will not, therefore, be paid. The preference dividend is paid to November, 1925. No dividend has yet been paid on the ordinary.

CHEMICAL AND METALLURGICAL CORPORATION.—A meeting of shareholders will be held at 12.30 p.m. on November 7, at River Plate House, London, for the purpose of considering proposals for the issue "from time to time" of the company's remaining unissued capital, amounting to 9,500,000 ordinary shares of 2s. each, and to increase the board to twelve. The new capital is stated to be required for the erection of an electrolytic zinc refinery.

WALL PAPER MANUFACTURERS, LTD.—For the year ended August 31 last, the profits amount to £639,783, as compared with £649,438 for the previous twelve months. A final dividend of 6 per cent. is recommended on the ordinary, making 10 per cent. for the year, and a dividend of 10 per cent. and a bonus of 2½ per cent. on the deferred, being all unchanged. It is further proposed to place £125,000 to reserve, against £150,000 last year, and carry forward £305,234.

NORTH BROKEN HILL, LTD.—For the year ended June 30 last, the report states that the profit and loss account is credited with mine production £1,415,765, also interest, rent, dividends, sundry receipts, £102,732, making a total of £1,518,497. From this must be deducted mine expenditure £865,910, administration, etc., £20,655, debenture interest £3,160, provision for taxes and royalties £100,000, reserve for depreciation £30,000, leaving £498,722 to be carried to appropriation account. To this amount is added £465,095, being the balance brought forward at June 30, 1926 (namely, £605,095, less dividend No. 67 of £140,000 paid therefrom); also add to these amounts £2,803 appropriation for new plant at June 30, 1926, unexpended at June 30, 1927, making a total of £966,670. The amount in appropriation account has been appropriated thus: Dividends Nos. 68, 69 and 70, £385,000, debenture sinking fund £13,333, and appropriation for plant expenditure £30,000, leaving a balance of £538,337. Dividends and bonuses paid during the year amounted to £525,000. Surplus liquid assets £1,031,232, exclusive of shares and debentures in other companies, which are shown in the balance sheet at £544,283.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

FISHSCALES ESSENCE.—An inquiry has been received in the Department of Overseas Trade for the names of United Kingdom firms supplying essences prepared from fish scales. (Reference 8143/27.)

BLEACHING AND DYEING PLANT, ETC.—A European firm of textile machinery importers and manufacturers' agents established in Bombay desire to represent British manufacturers. (Reference No. 368.)

CHEMICALS, RAW MATERIALS FOR SOAP AND MARGARINE WORKS.—An Agent in Oslo desires the representation for Norway of British producers or exporters. (Reference No. 384.)

DE-AERATING PLANT FOR BOILER FEED WATER.—Tenders are called for by the Department of Public Works, New South Wales, Electrical Engineering Office, for the manufacture, supply and delivery, f.o.r. Sydney, and the maintenance for six calendar months of a de-aerating plant for boiler feed water. Tenders are due by 2 p.m. on December 12, 1927. (Reference A.X. 5442.)

Nuera Art Silk Developments

A MEETING of the Nuera Art Silk Co. has been called for November 10 to sanction the increase of the capital by £210,000, divided into 210,000 £1 ordinary shares ranking, *pari passu*, with the existing ordinary shares. The new shares will be offered *pro rata* to existing shareholders at 27s. 6d. per share. In a statement issued on Tuesday the directors state that the factory to produce one ton of artificial silk by the Sindl-Maurer process a day, is now completed and on the point of working at full capacity. The equipment for the production of one ton of staple fibre per day is also on the site, but the directors have postponed its erection, since this plant can be more profitably employed in developing the new Lilienfeld process on a commercial scale. Since the issue of the prospectus, the directors have acquired the rights to manufacture five times the capacity of the present factory under the Lilienfeld patents. The fact that the exercise of the final option on the patents has been confirmed by Courtaulds and Glanzstoffs has, states the directors, supported the favourable opinions which they have always held.

An agreement, dated October 21, has been made between Courtaulds and Nuera which provides for complete collaboration in the scientific and technical development of the Lilienfeld patents. Work in connection with the new process is sufficiently advanced to warrant the immediate installation of a spinning plant to produce in quantity the new silk, which is said to be particularly useful for sewing thread.

Accidental Pollution of Canal: A Summons Withdrawn

AT the Cannock Police Court on Monday, the Cannock Agricultural Co. was summoned at the instance of the Board of Agriculture and Fisheries for a breach of the Freshwater Fisheries Act. Mr. G. Eddows, who appeared for the Board, said that a discharge of sulphuric acid had polluted the canal. Defendants had met the Board in a very fair manner, and had offered compensation. The Board did not ask for a conviction, and would be satisfied to accept the proposal of the company to pay to a club which held fishing rights in the canal 20 guineas towards the cost of restocking, and £7 for the costs of prosecution. Mr. A. J. Long for defendants, said that the company had not negligently permitted the water to be polluted. The facts were that a quantity of sulphuric acid, in a tank in a canal boat, was brought alongside their wharf and was being transferred through an air pressure pipe to a tank in the company's premises. The pipe, through a latent defect, burst, and a quantity of acid was blown into the air and no doubt into the canal. All steps were taken immediately to neutralise the effects of the acid, and the company felt that they could say that they were in no way guilty of negligence. The Bench allowed the summons to be withdrawn on the conditions stated.

Do you know that?

The first foam or froth system installed for the protection of a British oil-burning vessel was supplied by Foamite Firefoam, Ltd.

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Telephone: Regent 3105-6-7. Telegrams: "Foamite, Wesdo, London."

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[*NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.*]

LONDON CHEMICAL CO., 91, Minories, E.C., merchants. (C.C., 5/11/27.) £61 3s. 6d. August 2.

Mortgages and Charges

[*NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.*]

BILLING (CHARLES) AND CO., LTD., London, W.C., soap manufacturers. (M., 5/11/27.) Registered October 21, £1,000 debenture, to A. J. Bennett, Kirklington Hall, Southwell, M.P.; general charge.

FORTIN (ALBERT), LTD., London, W., dyers. (M., 5/11/27.) Registered October 5, £1,500 debentures; general charge. *——. April 8, 1927.

OZONE CHEMICAL CO., LTD., Talke. (M., 5/11/27.) Registered October 19, charge to Bank; charged on land at Talke.

Satisfactions

NAYLOR BROTHERS (LONDON), LTD., varnish manufacturers. (M.S., 5/11/27.) Satisfaction registered October 17, £650, registered November 11, 1920.

WILKINSON AND SIMPSON, LTD., Newcastle-on-Tyne, manufacturing chemists. (M.S., 5/11/27.) Satisfaction registered October 20, £25,000, registered February 14, 1921.

London Gazette, &c.

Bankruptcy Information

ANDERSON, Arthur, trading as HUDSON AND CO., and ARGONAUT VARNISH CO., Bevis Works, Atlas Road, Victoria Road, Willesden Junction, N.W., gum and shellac merchant and varnish manufacturer. (R.O., 5/11/27.) Receiving order, October 27. Debtor's petition. First meeting, November 8, 11.30 a.m., and public examination, January 18, 11 a.m., Bankruptcy Buildings, Carey Street, London, W.C.2.

Receiverships

GRUNDY (R. E.) AND CO. (1924), LTD. (R., 5/11/27.) G. F. Grimshaw, of 3, Mount Street, Manchester, ceased to act as Receiver on October 19, 1927.

SHANKLAND (G. A.), LTD. (R., 5/11/27). R. E. Clark, of 17, Albion Street, Hanley, ceased to act as Receiver or Manager on October 24, 1927.

STOCKTON-ON-TEES CHEMICAL WORKS, LTD. (R., 5/11/27.) T. P. Parmeter, of 31, Mosley Street, Newcastle-upon-Tyne, was appointed Receiver on October 19, 1927, under powers contained in debenture dated October 19, 1925.

New Companies Registered

SITORA REFINING CO., LTD., 22, Queen Street, London, E.C.4. Registered October 25. Nom. capital, £1,000 in £1 shares. Manufacturers, refiners, and producers of mineral and vegetable oils, liquid, paraffin and white oils, naphtha, benzine, coal by-products, fertilisers, etc. Directors: W. Ridley and A. B. Neil.

Voluntary Liquidation of Harts Colours, Ltd.

A MEETING of the creditors of Harts Colours, Ltd., colour manufacturers, Bredbury, near Stockport, and Darwen, was held on October 27, at the Chartered Accountants' Hall, 60, Spring Gardens, Manchester. It appeared that an extraordinary general meeting of the shareholders had previously been held when a resolution was passed that the company would not continue trading by reason of its liabilities, and that it was advisable for it to go into voluntary liquidation. The shareholders also appointed Mr. W. P. Masterson to act as liquidator. A statement of affairs was presented which disclosed ranking liabilities of £14,114 3s. 4d. The assets were estimated to realise £24,143 4s. 11d., from which had to be deducted £203 5s. 3d. for preferential claims, leaving net assets of £23,939 19s. 8d., or a surplus so far as the creditors were concerned of £9,825 16s. 4d. It was reported that the company was registered in December last, and for some time it was thought that its prospects were bright. The company was largely dependent for orders upon another concern which went into voluntary liquidation, Harts Colours, Ltd., sustaining a substantial loss. There was not much chance of a reconstruction. Trade was being continued at Darwen in order to complete contracts. A resolution was passed confirming the voluntary liquidation of the company, with Mr. Masterson as liquidator.

The Profession of Chemistry

THE new session of the Belfast and District Section of the Institute of Chemistry was opened at the Royal Belfast Academical Institution on October 19, when Dr. W. H. Gibson, chairman of the section and director of the Linen Research Institute, Lambeg, gave an address on "The Profession of Chemistry." Where economic considerations were concerned, he said, the prospects of the profession were not favourable. The financial situation had had an adverse influence, while labour disputes had also hindered the progress on which the prosperity of chemists was largely dependent. The tendency to amalgamate industries into large organisations was, perhaps, a matter which would affect the profession in a marked degree. Such a tendency would probably mean that a smaller number of chemists and other technicians would control vast masses of labour and mechanical labour power. For the chemist the future seemed to afford a comparatively limited number of opportunities of employment, but such opportunities offered very considerable prospects.

Marking of Imported Pottery

THE meetings under the Merchandise Marks Act, 1926, arranged to take place on Wednesday and Thursday, November 2 and 3, were cancelled. The inquiry will be resumed at 10.30 a.m. on Monday, November 7, instead. The inquiry will be held in Room 76, First Floor, New Public Offices, Great George Street, London, S.W.1. Any communication on the subject should be addressed to the Secretary, Mr. E. W. Reardon, at the above address.

Benn Brothers' Other Journals

THE CABINET MAKER.—Notes from the Home Journals; The Finish of Furniture; Retailers' Autumn Literature.

THE ELECTRICIAN.—"Higher Steam Pressures and their Application to the Steam Turbine," by A. H. Law and J. P. Chittenden; "Continuity of Supply," by R. K. Robertson; Annual Dinner of the Faraday House Old Students' Association.

THE FRUIT GROWER.—(Second Imperial Fruit Show Number): "The Triumph of Bramley's Seedling"; Full list of awards; Round the Trade Stands.

GARDENING ILLUSTRATED.—Cultivation of Coolhouse Orchids; Coryanthes, Catasetums and Odontoglossums; a Nosegay Garden.

THE GAS WORLD.—Monthly By-Product Coking Section: Gas Companies' Capital and Reserves; Annual Meeting of Gas Companies' Protection Association.

THE HARDWARE TRADE JOURNAL.—Household Appliance Firms and Hire Purchase; The Cycle and Motor Cycle Exhibition; The Ironmonger's Workshop; Features of New Hardware Selling Lines.

THE TIMBER TRADES JOURNAL.—Timbers of the Ivory Coast; Railway Rates for Timber; Warranties in the Contract of Sale; Latvian Timber Position; More about the Deal Frame.